Embedded PC EPC Series

EPC-2020 Series

User's Manual

CONTEC CO.,LTD.

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1. Introduction

About the Product

This product is a high-performance FA personal computer equipped with the Intel ® Celeron ™ processor and Intel ® Core ™ processor.

I adopt Embedded-type chipset and CPU. The use of parts that can be stable supply, can be used with confidence.

Features

Compatible with Intel ® Core ™ processor series Sandy Bridge
I am a lineup of CPU of the following two.

Intel® Core™ i5 2510E

Intel® Celeron™ B810

CPU built-in high-performance graphics
It has (except the Celeron ™ B810) corresponds to the Intel ® HD Graphics 3000, it is possible to play smoothly videos full HD.

The extended peripherals are supported. Rich interface
I am with extended interface analog RGB, HDMI, 1000BASE-T x 2, USB2.0 x 8, (RS-232C) x 2, such as audio serial.

I adopt a removable storage structure
Adopt a front accessible 2.5 in. SATA storage, it also supports RAID features such as mirroring.

You can install a riser board that you can implement a PCI board or PCI-Express x 16.
Implementation maximum board size: 312 (L) x 111 (H) up to [mm]

I can be equipped with a RAID card.

Supported OS

- Windows® 7 Professional 32bit / 64bit Japanese
- Windows® 7 Ultimate 32bit
- Windows® Embedded Standard 2009 32bit Multi-Language

Customer Support

CONTEC provides the following support services for you to use CONTEC products more efficiently and comfortably.

Web Site

Japanese	http://www.contec.co.jp/
English	http://www.contec.com/
Chinese	http://www.contec.com.cn/

Latest product information

CONTEC provides up-to-date information on products.
CONTEC also provides product manuals and various technical documents in the PDF.

Free download

You can download updated driver software and differential files as well as sample programs available in several languages.

Note! For product information

Contact your retailer if you have any technical question about a CONTEC product or need its price, delivery time, or estimate information.

Limited One-Year Warranty

CONTEC products are warranted by CONTEC CO., LTD. to be free from defects in material and workmanship for up to one year from the date of purchase by the original purchaser.

Repair will be free of charge only when this device is returned freight prepaid with a copy of the original invoice and a Return Merchandise Authorization to the distributor or the CONTEC group office, from which it was purchased.

This warranty is not applicable for scratches or normal wear, but only for the electronic circuitry and original products. The warranty is not applicable if the device has been tampered with or damaged through abuse, mistreatment, neglect, or unreasonable use, or if the original invoice is not included, in which case repairs will be considered beyond the warranty policy.

How to Obtain Service

For replacement or repair, return the device freight prepaid, with a copy of the original invoice. Please obtain a Return Merchandise Authorization number (RMA) from the CONTEC group office where you purchased before returning any product.

* No product will be accepted by CONTEC group without the RMA number.

Liability

The obligation of the warrantor is solely to repair or replace the product. In no event will the warrantor be liable for any incidental or consequential damages due to such defect or consequences that arise from inexperienced usage, misuse, or malfunction of this device.

Safety Precautions

Understand the following definitions and precautions to use the product safely.

Safety Information

This document provides safety information using the following symbols to prevent accidents resulting in injury or death and the destruction of equipment and resources. Understand the meanings of these labels to operate the equipment safely.

⚠ DANGER	DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
⚠ WARNING	WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
⚠ CAUTION	CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or in property damage.

Caution on the EPC-2020 Series

Handling Precautions

⚠ WARNING

- Always check that the power supply is turned off before connecting or disconnecting power cables.
- Do not use this product in a location where flammable or corrosive gases are present. Doing so may lead to explosions, fire, electric shock, or product failures.
- Do not touch the gold-plated terminals (such as the edge connectors) of this product with your hands. Doing so may lead to malfunctions or product failures. Be sure to turn the power off before performing such an action.
- When transporting or moving this product, be sure to use the original packaging in which it was shipped from CONTEC or other equivalent packaging in order to prevent vibrations, impacts, and static electricity.
- Do not modify the product.
- Always turn off the power before inserting or removing circuit boards or cables.
- When performing operation checks and when using the product, ensure that there are no mistakes such as incorrectly inserted power cables and signal cables.
- When using the product with cards inserted in the expansion slots, the product may not operate normally due to the PCI bus load. Therefore, consider the bus load and the priority of the slots in which cards will be inserted when using the product.
- If using this product in applications where safety is critical such as in railways, automotive, or disaster prevention or security systems, please contact your retailer.
- Do not attempt to replace the battery as inappropriate battery replacement poses a risk of explosion.
- For battery replacement, contact your retailer as it must be performed as a process of repair.
- When disposing of a used battery, follow the disposal procedures stipulated under the relevant laws and municipal ordinances.

⚠ CAUTION

- Do not use or store this product in a location exposed to high or low temperature that exceeds range of specification or susceptible to rapid temperature changes.
  Example: - Exposure to direct sun
  - In the vicinity of a heat source
- Do not use this product in extremely humid or dusty locations. It is extremely dangerous to use this product with its interior penetrated by water or any other fluid or conductive dust. If this product must be used in such an environment, install it on a dust-proof control panel, for example.
- Avoid using or storing this product in locations subject to shock or vibration that exceeds range of specification.
- Do not use this product in the vicinity of devices that generate strong magnetic force or noise. Such products will cause this product to malfunction.
- Do not use or store this product in the presence of chemicals.
- To clean this product, wipe it gently with a soft cloth dampened with either water or mild detergent. Do not use chemicals or a volatile solvent, such as benzene or thinner, to prevent pealing or discoloration of the paint.
- Continuously operating the product may decrease the service life of the hard disk drive, so use the standby mode.
- Always disconnect the power cable from the receptacle before mounting or removing the expansion board, or before connecting or disconnecting any connector.
- CONTEC reserves the right to refuse to service a product modified by the user.
- In the event of failure or abnormality (foul smells or excessive heat generation), unplug the power cord immediately and contact your retailer.
- Use an AC cable that matches the power supply voltage and outlet plug that you are using. (The included cable is designed for use with a 125 VAC power supply.)
- Component Life:
  Battery---The internal calendar clock and CMOS RAM are backed by a Lithium primary battery.
  The backup time at a temperature of 25℃ with the power disconnected is 7 years.
  * Replacement of expendables is handled as a repair (there will be a charge).
- To connect with peripherals, use a grounded, shielded cable.
- Do not use a UPS (Uninterruptible Power Supply) that generates square waves. Connecting the product to this type of UPS may lead to product failure.
- Replacing the battery with an inappropriate type of battery may lead to explosions. Dispose of used batteries according to the instructions in the instruction manual.
- When disposing of a used battery, follow the disposal procedures stipulated under the relevant laws and municipal ordinances.
- If using this product in an environment that is subject to noise, attach a ferrite core to each signal cable (LAN, USB, serial, analog RGB, HDMI, and line input).

FCC PART 15 Class A Notice

NOTE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in commercial environment.
This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference at his own expense.

WARNING TO USER

Change or modifications not expressly approved the manufacturer can void the user's authority to operate this equipment.

2. System Reference

Specification

Table 2.1. Functional Specification ***< 1 / 2 >***

Model	EPC-2020-AC17000-C01	EPC-2020-AC27000-C01
CPU	Intel(R) Celeron™ Processor B810 1.6GHz Two cores, two threads, no ECC	Intel(R) Core™ i5 Processor 2510E 2.5GHz Two cores, two threads, no ECC
Chip set	Intel® QM67	
BIOS	BIOS (mfd. by AMI)	
Memory	4GB(DDR3-1333MHz) x 1 204pin SO-DIMM Socket x 2 (Max. 8GB) 2 GB or 4 GB DDR3-SDRAM addable, no ECC	
Graphic		
Controller	Intel(R) HD Graphics (Celeron™ mdoel)	Intel(R) HD Graphics 3000 (Core™ i5 model)
VIDEO	CPU internal graphics controller (Max1920 x 1200(16,770,000 colors)) Analog RGB x 1, HDMI x 1	
Storage	Not equipped as standard HDD and SSD installable as setup options	
Audio	HD Audio compliant LINE OUT x 1 LINE IN x 1 MIC IN x 1	
LAN	LAN-A : Intel 82579LM controller, LAN-B : Intel 82583V controller 1000BASE-T/100BASE-TX/10BASE-T, (Wake On LAN support)	
USB	USB A type connector x 8 channels (USB 2.0-compliant)	
Serial	RS-232C D-sub 9Pin x 2, Baud rate : 50 - 115,200bps (programmable)	
Hardware monitoring	Temperature monitoring, number of fan rotations, power supply voltage monitoring	
Watch dog timer	255 level (1sec - 255 sec) Causes a reset upon time-out.	
RTC/CMOS	Lithium backup battery life : 7 years or more (at 25°C) The real-time clock is accurate within ±3 minutes (at 25°C) per month	
Power Management	Power management setup via BIOS Wake On LAN	
Interface		
Display	Analog RGB D-SUB 15 pin x 1, HDMI x 1	
Audio	LINE OUT: ϕ3.5 Stereo mini jack (LINE OUT, LINE IN, MIC IN)	
CFast card slot	Not equipped as standard 1 slot (CFast CARD (Type I) x 1, bootable)	
RAID card	Not equipped as standard RAID card set (RAID-1, mirroring supported) equippable as setup option	
Expansion slot	Not equipped as standard One selection equippable as setup option - PCI-Ex16 x 1 slot - PCI x 1 slot	
Serial ATA	2.5inch SATA I/F removable x 2, 2.5inch SATA I/F shadow bay x 1	
LAN	2 ports(RJ-45 connector)	
USB	8 ports (TYPE-A connector x 8)	
RS-232C	2 ports (9 pin D-SUB connector [male])	
ROM-DRIVE	SLIM DVD-MULTI-DRIVE x 1	
Heat dissipation method	Forced air cooling with a fan	
Supported OS	Windows 7 Professional Windows XP Professional	

Table 2.1. Functional Specification ***< 2 / 2 >***

Model	EPC-2020-AC17000-C01	EPC-2020-AC27000-C01
Power supply (270 W ATX)		
Rated input voltage	100 - 240VAC (momentary power failure: 16 ms or more)	
Range of input voltage	90 - 264VAC	
Power consumption (Max.)	100V : 1.6A, 240V : 0.9A	
Expansion slot Current suppliable over USB	< When setup option PCI-Ex16 x 1 slot is installed > - Option slot +3.3V : 3A +12V : 2.1A - USB +5V : 4A(0.5A x 8) < When setup option PCI × 1 slot is installed > - Option slot +3.3V : 1A +5V : 1A +12V : 1A - USB +5V : 4A(0.5A x 8)	
Physical dimensions (mm)	100(W) x 348(D) x 262(H) (no protrusions)	
Weight	About 5.6kg (Without option)	
Standard	CE class A, FCC class A, VCCI class A	

Table 2.2. Installation Environment Requirements

Model	EPC-2010
Operating temperature	5 - 40°C
Storage temperature	-20 - 60°C
Humidity	20 - 85%RH (No condensation)
Floating dust particles	Not to be excessive
Corrosive gases	None
Vibration resistance	When equipped with setup option HDD and with the power on Vertical orientation :10 - 55Hz/0.98m/s^2 (0.1G) Horizontal orientation : 10 - 55Hz/1.96m/s^2 (0.2G) 1 oct/minute, 1 cycle (10 to 55 to 10 Hz), 5 cycles in each of the three directions: X, Y, and Z (25 minutes each) (JIS C 60068-2-6,IEC60068-2-6-compliant)
	Setup Options SSD equipped and energized 10 - 57Hz/0.15mm (semi-amplitude) 57-150Hz/19.6m/s^2 (2G), 1 oct/minute, 1 cycle (10 to 1455 to 10 Hz), 5 cycles in each of the three directions: X, Y, and Z (40 minutes each) (JIS C 60068-2-6,IEC 60068-2-6-compliant)
Grounding	98 m/s^2 (10 G), 11 ms, half-sine wave, 3 times in each direction: X, Y, and Z ± 3 directions (JIS C 60068-2-27,IEC 60068-2-27-compliant)

Physical Dimensions

Main unit dimensions

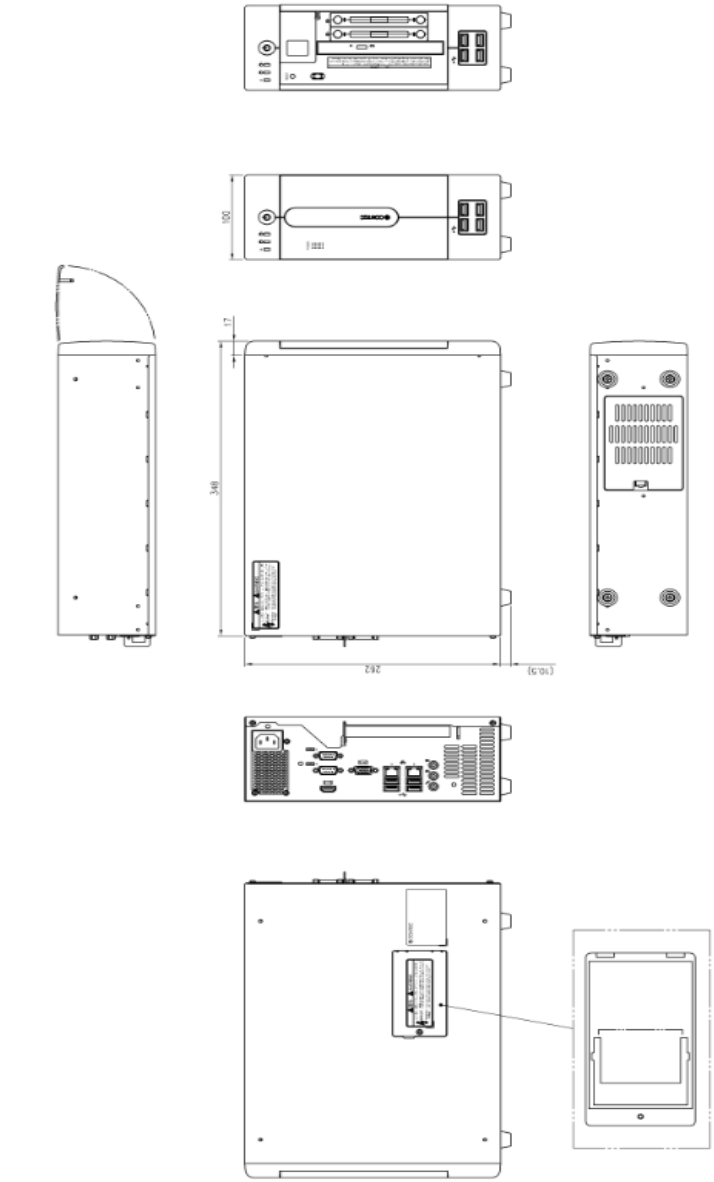


Figure 2.1. Main unit dimensions

Dimensions when attached to the stand

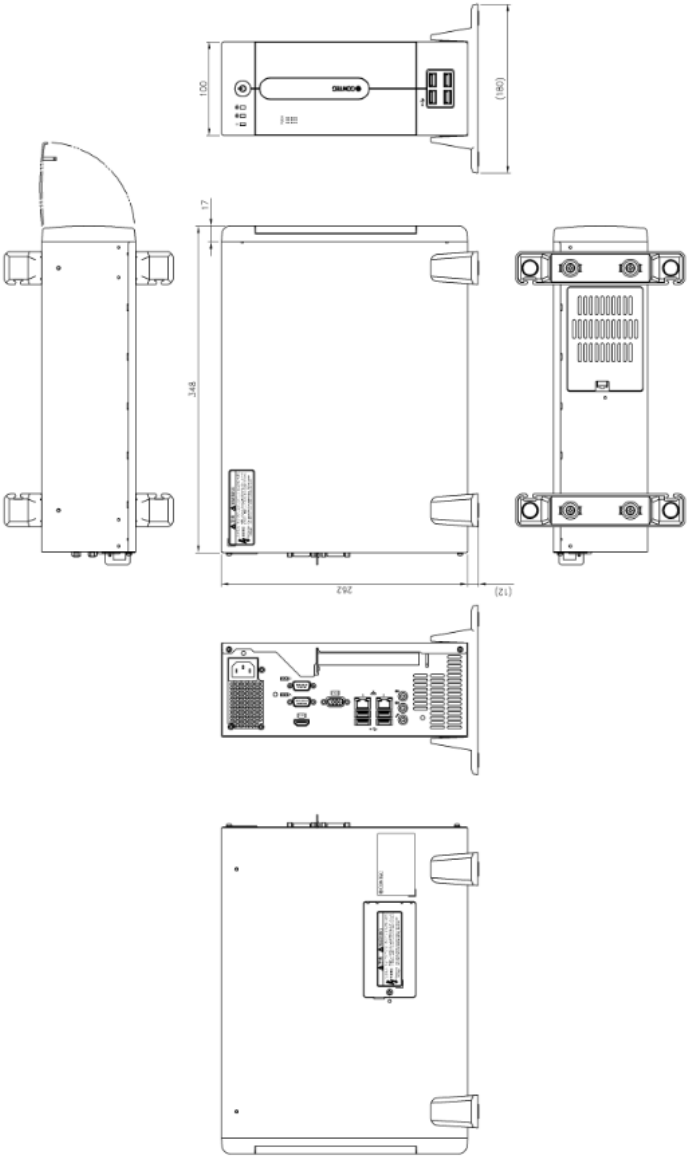


Figure 2.2. Dimensions when attached to the stand

3. Hardware Setup

Before Using the Product for the First Time

Follow the next steps to set up this product:

STEP1 By referring to the information in this chapter, install, connect and set this product.

STEP2 Connect cables.
Connect the cable of necessary external devices, such as keyboard and a display, to this product using appropriate cables.

STEP3 Turn on the power.
After verifying that you have correctly followed steps 1 and 2, turn on the power.
If you find any abnormality after turning on the power, turn it off and check to see if the setup has been performed properly.

STEP4 Set up BIOS.
By referring to Chapter 5, set up BIOS. This setup requires a keyboard and a display.

*1 Before using this product, be sure to execute "Restore Defaults" to initialize the BIOS settings to their default values.
(See **Chapter 5, " Main Menu "**.)

⚠ CAUTION

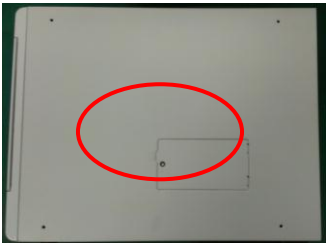
Be sure to connect the keyboard and mouse to it before turning the power on for the first time.

Hardware Setup

- Before you start, be sure that the power is turned off.
- Remove only those screws that are explained. Do not move any other screw.

Installing the Internal CFast Card

(1) Remove the screw from the panel, which is being held in place by the said screw, on the base of the main unit.



(2) Remove the panel.

(3) Insert the CFast card into the main unit.

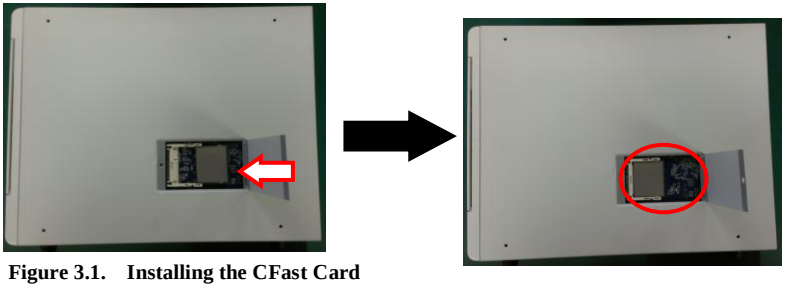


Figure 3.1. Installing the CFast Card

(4) I screwed the bottom panel.

⚠ CAUTION

If you use a CFast card other than the optional card, we cannot guarantee the specifications of this product. If you want to use the product within its specifications, be sure to use the optional CFast card.

The specified tightening torque is 5 - 6kgf·cm.

Installing HDDs

You can equip the product with slot-in type 2.5-inch SATA HDDs.

(1) Loosen the HDD case screws on the front of the product, and then pull out the case.

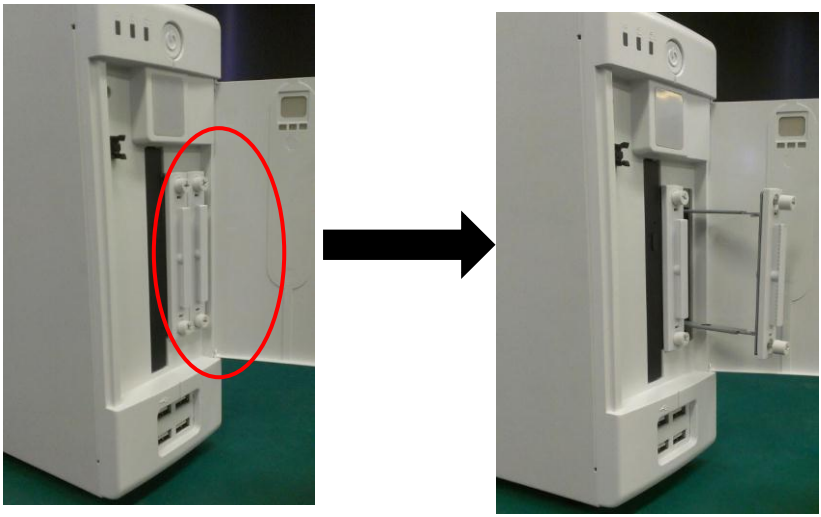


Figure 3.2. Removing the HDD case

(2) Use screws to fix the HDD in place inside the HDD case with the HDD label facing up.

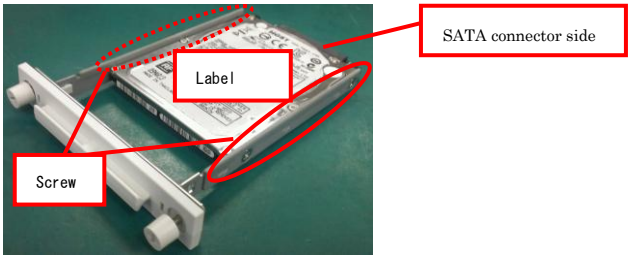


Figure 3.3. Installation of HDD

⚠ CAUTION

Please note the mounting direction of the HDD.
The specified tightening torque is 2.5±0.2 kgf･cm.

(3) Return the HDD case to the main unit.

Figure 3.4. HDD Insertion

⚠ CAUTION

If you are using, you will not be able to guarantee the specifications of this product the HDD other than the optional.

If you would like to use within the specification, please use the HDD option of this product.

Installation Requirements

Be sure that the ambient temperature is within the range specified in the installation environment requirement by making space between the product and device that generates heat or exhaust air.

Vertical orientation

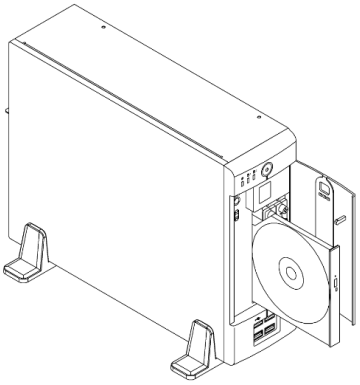
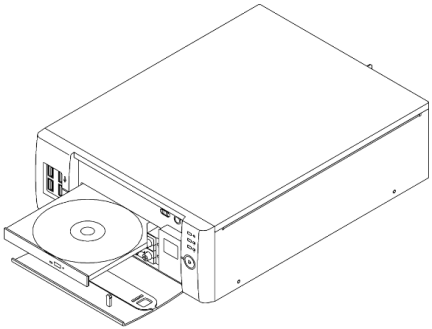


Figure 3.5. Vertical orientation

Horizontal orientation



Horizontal orientation

Vertical orientation

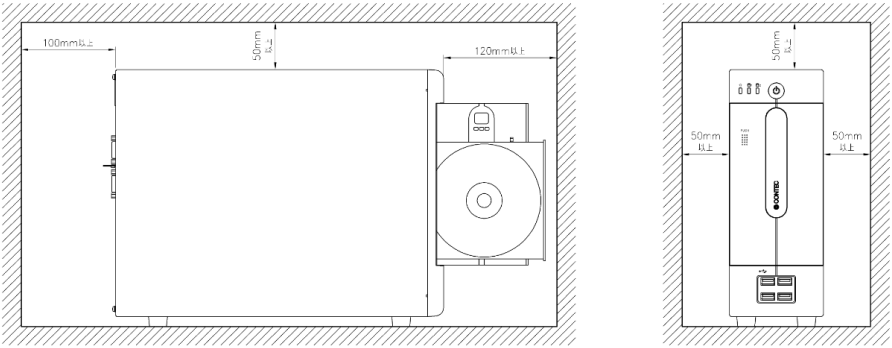


Figure 3.6. Vertical Orientation Installation

⚠ CAUTION

When using the product in the vertical orientation, be sure to attach the rubber feet to the base of the product in order to prevent the blocking of the fan inlet port on the base of the product. Also, attach the rubber feet to the stand to use it. Attaching anything other than the rubber feet to the stand may lead to the stand blocking the inlet port.

Horizontal orientation

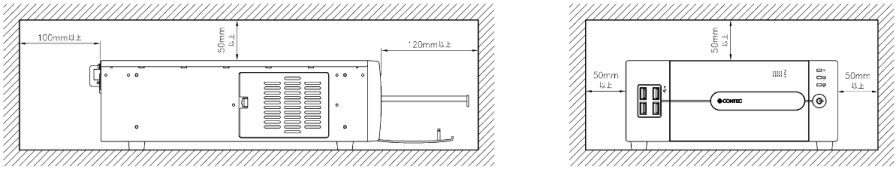


Figure 3.7. Horizontal Orientation Installation

Installing Expansion Cards

(1) Remove the screws from the sides of the cover, and then remove the main unit cover.

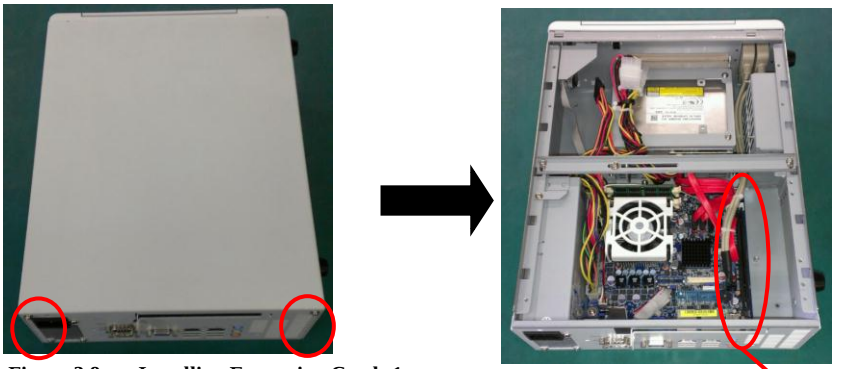


Figure 3.8. Installing Expansion Cards 1

(2) Insert a riser card.

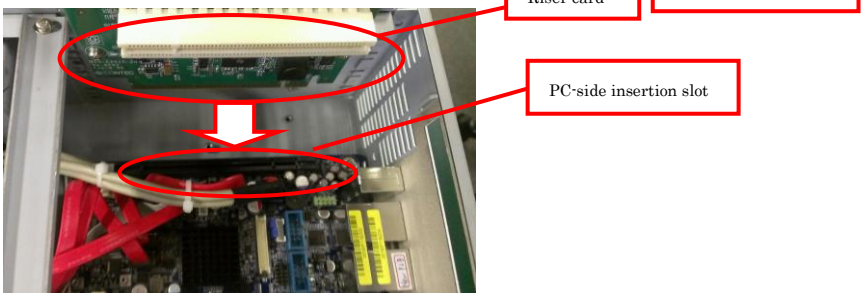


Figure 3.9. Installing Expansion Cards 2

(3) Use screws to fix the riser card in place.

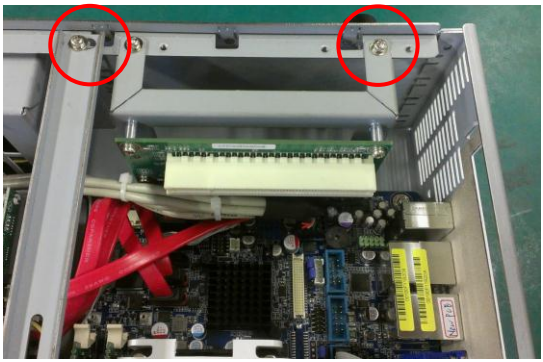


Figure 3.10. Installing Expansion Cards 3

(4) Attach the main unit cover.

⚠ CAUTION

Pay attention to the proper riser card insertion direction.
The specified tightening torque is 5 - 6kgf·cm.

4. Each Component Function

Component Name

Front side　　Front side (when the door is open)　　Back side

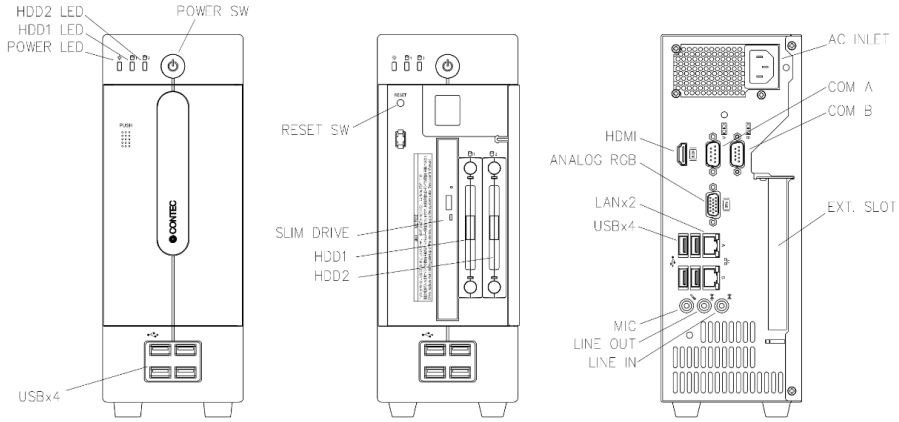


Figure 4.1.　Component Name

Table 4.1.　Component Function

Name	Function
POWER SW	Power switch
POWER LED	Power LED(Green)
HDD1 LED	HDD1 access LED (Display colors please see page 24.)
HDD2 LED	HDD2 access LED (Display colors please see page 24.) (This LED does not light when the product is not equipped with the optional RAID card set.)
RESET SW	RESET switch
SLIM DRIVE	SLIM DVD-MULTI-DRIVE x 1
HDD1, 2	2.5" SATA drives x 2
AC INLET	AC100-240V Power input connector
COM A,B	RS-232C serial port A connector (9pin D-SUB/male) x 2
ANAROG RGB	Analog RGB connector (15pin D-SUB/female)
HDMI	HDMI connector
LAN	Ethernet 1000BASE-TX/100BASE-T/10BASE-T RJ-45 connector x 2
USB	USB port connector x 8
LINE IN	Line in (3.5φ PHONE JACK)
LINE OUT	Line out (3.5φ PHONE JACK)
MIC	Mike in (3.5φ PHONE JACK)
EXT.SLOT	PCI Express x16 or PCI slot

Component Function

Power switch : POWER SW

This is the power switch. You can use this component to turn the power on or off. Depending on the operating status of the main unit, this component operates as shown below.

Standby status (Standby power supply : ON, Main power supply : OFF)

System start operation:
When a low pulse is applied, the main power supply turns on and the system starts. Use an input pulse width between 0.1 seconds and 3 seconds.

OS started status (Standby power supply : ON, Main power supply : ON)

Shutdown operation :
When a low pulse is applied, the shutdown process is performed, and then the product switches to the standby status.

Forced shutdown status :
When a low pulse with a pulse width of 3 seconds or longer is applied, the forced shutdown process is performed. The power supply is forcibly turned off and the product switches to the standby status without performing the OS shutdown process. HDD files may be corrupted, so only use this function in emergencies.

Power LED : POWER LED

This is the power supply LED. It lights when the power supply is on.

Hard disk LED : HDD LED

These are the HDD access LEDs. They light when the HDD is being accessed.

(1) The status of the lit LEDs when the RAID option is not installed is shown in Table 4.2.

Table 4.2. Lit HDD Access LEDs (With RAID Setup Option not Installed)

System Status (Operation Mode)	HDD1 LED 表示色	HDD2 LED 表示色
Starting	Off	Off
Normal mode, no host access	Off	Off
Normal mode, host access, writing	Green	Off
Normal mode, host access, reading	Green	Off

(2) The status of the LEDs when the RAID option is installed is shown in Table 4.3.

Table 4.3. Lit HDD Access LEDs (With RAID Setup Option Installed)

System Status (Operation Mode)	HDD1 LED 表示色	HDD2 LED 表示色
Starting	Orange	Orange
Normal mode, no host access	Off	Off
Normal mode, host access, writing	Green	Green
Normal mode, host access, reading (when the main drive is drive 1)	Green	Off
Normal mode, host access, reading (when the main drive is drive 2)	Off	Green
Degrade mode, HDD1 malfunction, no host access	Green	Green
Degrade mode, HDD1 malfunction, host access	Red	Off
Degrade mode, HDD2 malfunction, no host access	red	Green
Degrade mode, HDD2 malfunction, host access	Off	Red
Degrade mode, HDD2=>HDD1 no host access	Green	Red
Degrade mode, HDD2=>HDD1 host access	Green / Orange (alternating)	Green
Degrade mode, HDD1=>HDD2 no host access	Green / Orange (alternating)	Green
Degrade mode, HDD1=>HDD2 host access	Green	Green / Orange (alternating)
System halt, configuration information mismatch	Green	Green / Orange (alternating)
System halt, other than configuration information mismatch	Off	Off

Reset switch : RESET SW

The product is equipped with a hardware reset switch. To prevent the pressing of this switch in error, the switch is difficult to press. Use a fine-tipped object to press the switch.

DVD drive : SLIM DRIVE

The product is equipped with a slim-type DVD multi drive.

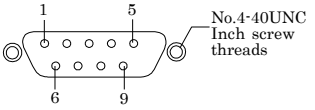
Hard disk : HDD1, 2

These are slots for equipping the product with 2.5-inch SATA HDDs.

Serial port interface : COM A, B

The product has 2 ports of RS-232C compliant serial ports supporting up to a baud rate of 115,200bps with a 16-byte transmission-dedicated data buffer and a 16-byte reception-dedicated data buffer.

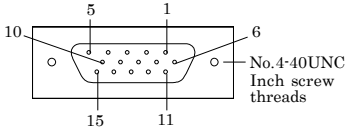
Figure 4.4. Serial port connector

Connector used on the product	9-pin D-SUB (MALE)
	
Pin No.	Signal name
1	CD
2	RD
3	TD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

Analog RGB : ANALOG RGB

The product is equipped with a connector for use in connecting to an analog RGB display.

Table 4.5. Analog RGB connector

Connector type	HD-SUB 15 pin (FEMALE)		
			
Pin No.	Signal name	Pin No.	Signal name
1	RED	9	+5V
2	GREEN	10	GND
3	BLUE	11	N.C.
4	N.C.	12	DDCDATA
5	GND	13	HSYNC
6	GND	14	VSYNC
7	GND	15	DDCCLK
8	GND		

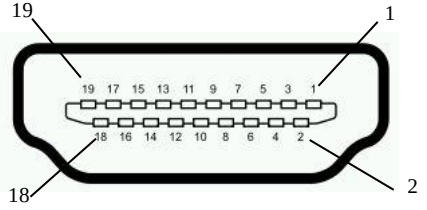
HDMI Connector : HDMI

The product is equipped with an HDMI interface. You can connect an HDMI display.

You can also connect to a DVI display by using an HDMI to DVI conversion cable.

Table 4.6. HDMI Connector

Connector type	19 pin HDMI Type A(MALE)



Pin No.	Signal name	Pin No.	Signal name
1	TMDS Data2+	2	TMDS Data2Sheild
3	TMDS Data2-	4	TMDS Data1+
5	TMDS Data1Sheild	6	TMDS Data1-
7	TMDS Data0+	8	TMDS Data0Sheild
9	TMDS Data0-	10	TMDS Clock+
11	TMDS Clock Shield	12	TMDS Clock-
13	N.C.	14	N.C
15	SCL	16	SDA
17	DDC GND	18	+5V
19	Hot Plug Detect		

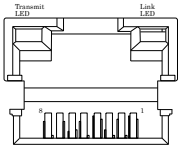
Giga bit-Ethernet : LAN A – B

This product is equipped with 2 ports for giga bit.

- Network type : 1000BASE-T/100BASE-TX/10BASE-T
- Transmission speed * : 1000M/100M/10M bps
- Max. network path length : 100m/segment
- Controller : LAN A : QM67 built-in controller GigaLAN +82579 LM [Intel]
  LAN B : GigaLAN controller 82583V [Intel]

* Operation at 1000Mbps requires a category 5e cable.

Table 4.7. Giga bit-Ethernet Connector



Pin No.	Function	
	100BASE-TX	1000BASE-T
1	TX+	TRD+(0)
2	TX-	TRD-(0)
3	RX+	TRD+(1)
4	NC	TRD+(2)
5	NC	TRD-(2)
6	RX-	TRD-(1)
7	NC	TRD+(3)
8	NC	TRD-(3)

LEDs for display of network statuses

Right LED : Link LED

Normal connection : Green ON, Operation: Green Blinking

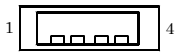
Left LED : Operation LED

10M:Off、100M : Green, 1000M : Orange

USB Ports : USB

This product is equipped with 8 channels for USB 2.0 interface.

Table 4.8. USB connector



Pin No.	Function
1	USB_VCC
2	USB-
3	USB+
4	USB_GND

Line IN Interface: LINE IN

The product is equipped with a connector for line input. You can connect a CD player or other audio output devices to the product, and then record audio to the system or play back audio from LINE OUT.

Line OUT Interface : LINE OUT

A line output connector is provided. You can plug a headphone or amplifier-integrated speakers into this connector.

MIC in Interface: MIC

A MIC input connector is provided. You can plug a microphone to this connector for sound input.

Audio driver

The audio driver is required to use the microphone input and line output interfaces.

Install the appropriate audio driver for your OS from the CONTEC's Web site.

Expansion slot : EXT.SLOT

You can insert an optional PCI-Express (x16) card or PCI card into the one expansion slot.

Board Dimensions Allowed

When not using a shadow bay, you can insert a full-sized PCI-Express card or PCI card shown in the figure below.

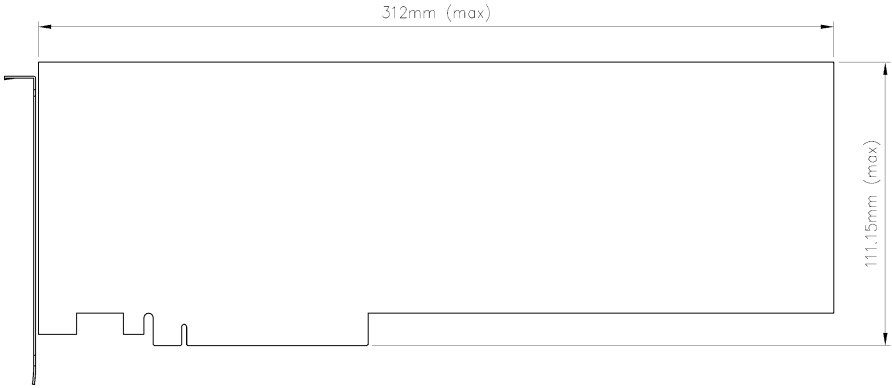


Figure 4.2. Board Dimensions Allowed

5. BIOS Setup

Introduction

This chapter discusses AMI's Setup program built into the FLASH ROM BIOS. The Setup program allows users to modify the basic system configuration. This special information is then stored in FLASH ROM so that it retains the Setup information when the power is turned off.

The rest of this chapter is intended to guide you through the process of configuring your system using Setup.

Starting Setup

The BIOS is immediately activated when you first power on the computer. The AMI BIOS reads the system information contained in the CMOS ROM and begins the process of checking out the system and configuring it. When it finishes, the BIOS will seek an operating system on one of the disks and then launch and turn control over to the operating system.

While the BIOS is in control, the Setup program can be activated in one of two ways:

- By pressing <Del> or <F2> immediately after switching the system on, or
- By pressing the <Del> or <F2> key when the following message appears briefly at the bottom of the screen during the POST (Power On Self-Test).

  Press <DEL> or <F2> to enter setup.

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON. You may also restart by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys.

Using Setup

In general, you use the arrow keys to highlight items, press <Enter> to select, use the "+" and "-" keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more detail about how to navigate in the Setup program using the keyboard.

Table 5.1. Using Setup

Key	Function
Up Arrow	Move to the previous item
Down Arrow	Move to the next item
Left Arrow	Move to the item on the left (menu bar)
Right Arrow	Move to the item on the right (menu bar)
Enter	Move to the item you desired
+	Increase the numeric value or make changes
−	Decrease the numeric value or make changes
F1	General help on Setup navigation keys
F2	Load previous settings
F3	Load the optimized defaults
F4	Save all settings changes to the FLASH ROM and exit
ESC	Main Menu: Quit without saving changes Submenus: Exit Current page to the next higher level menu

Getting Help

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc> or the F1 key again.

In Case of Problems

If it is not possible to boot the computer after system settings have been changed and saved during setup, this product will need to be repaired.

The best advice is to only alter settings which you thoroughly understand. To this end, we strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both AMI and your systems manufacturer to provide the absolute maximum performance and reliability. If chipset settings are changed even slightly, it may become necessary to repair the unit.

A Final Note About Setup

The information in this chapter is subject to change without notice.

Main Menu

Once you enter the Aptio Setup Utility, the Main Menu will appear on the screen. By pressing the left or right arrow keys, you will be able to move the tab of each item.

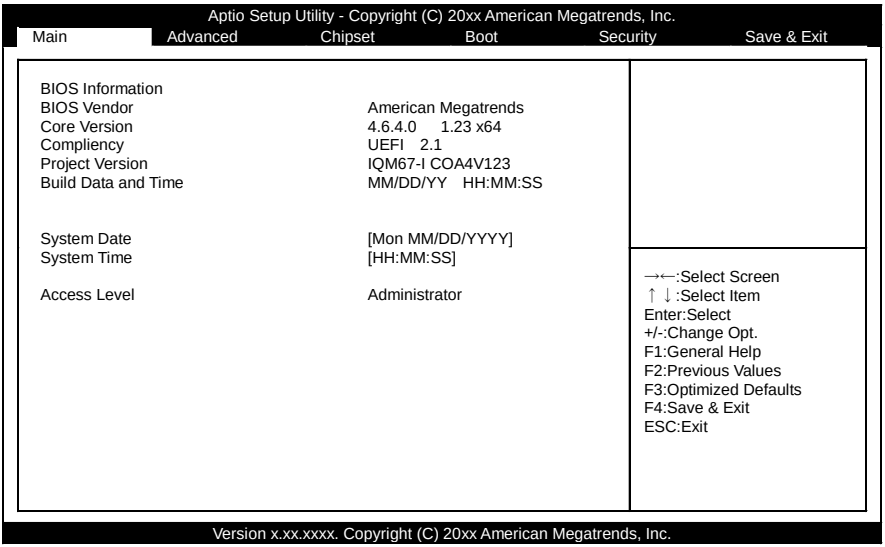


Figure 5.1. Main Manu

Setup Items

You can choose the following tabs.

Main
Use this menu to confirm the system basic configuration and set the language and time at the same time.

Advanced
Use this menu to set the detailed function that can setting to your system.

Chipset
Use this menu to specify the setting about your chipset.

Boot
Use this menu to specify the setting about the system boot.

Security
Use this menu to set the password so that the system security can be protected.

Save & Exit
Use this menu to load or save the setup item and to exit the setup menu.

Main

Use this menu to check basic system configuration. The following items are displayed.

Table 5.2. Display item in the main menu

Item	Options	Description
BIOS Vendor	American Megatrends	This item displays the BIOS manufacturer.
Core Version	XXXXXXX	This item displays the BIOS core version.
Compliency	UEFI 2.1	This item displays the UEFI version.
Project Version	IQM67-I C0A0V170	This item displays the BIOS version.
Build Data and Time	03/29/2012 09:03:52	This item displays the BIOS creation date and time.
Access Level	Administrator	This item displays the access rights level.

You can configure the following settings.

Table 5.3. Main Menu Selections

Item	Option	Description
System Date	Month / Day / Year	Set the system date. Note that the 'Day' automatically changes when you set the date.
System Time	Hour : Minute : Second	Set the system time.

Advanced

Use this menu to set the detailed function that can setting to your system.

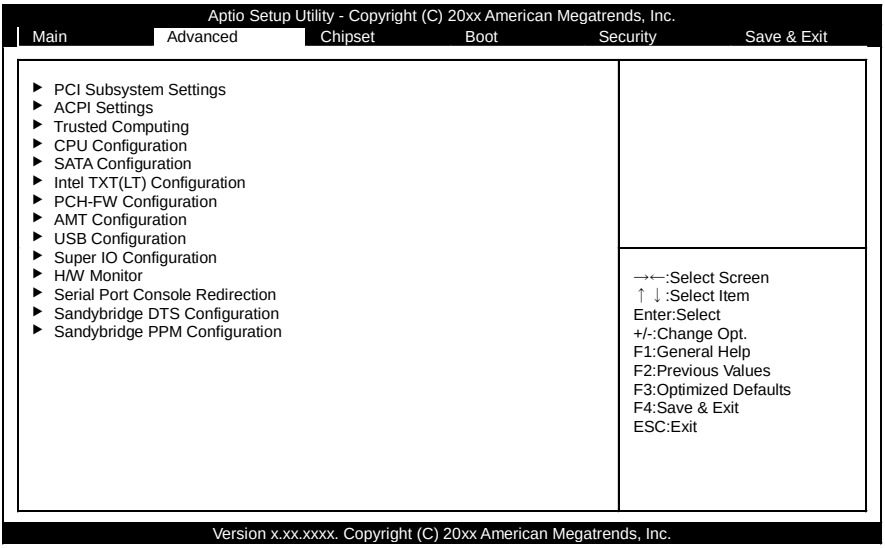


Figure 5.2 Advanced menu

The following items are available:

PCI Subsystem Settings
Use this menu to specify PCI Subsystem Settings.

ACPI Settings
Use this menu to specify ACPI power management settings.

Trusted Computing
Use this menu to specify TPM settings.

CPU Configuration
Use this menu to specify CPU Configuration.

SATA Configuration
Use this menu to specify SATA Configuration settings.

Intel TXT(LT) Configuration
Use this menu to specify Intel TXT(LT) Configuration settings.

PCH-FW Configuration
You can view the Intel ME firmware version.

AMT Configuration
Use this menu to specify Intel AMT Configuration settings.

USB Configuration
Use this menu to specify USB Configuration settings.

Super IO Configuration
Use this menu to specify Super IO Configuration settings.

H/W Monitor
You can view hardware monitors such as that for the CPU temperature.

Serial Port Console Redirection
You can specify the serial console settings.

Sandybridge DTS Configuration
You can specify the CPU temperature monitoring correction setting.

Sandybridge PPM Configuration
You can specify the settings related to the CPU power-saving mode.

PCI Subsystem Settings

Use this menu to specify PCI, PCI Express bus Settings.

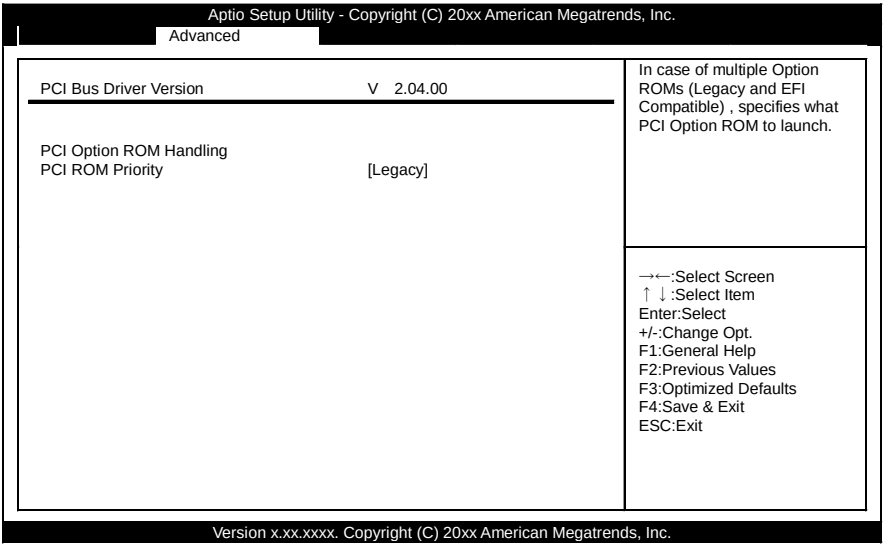


Figure 5.3. PCI Subsystem Settings

Table 5.4. PCI Subsystem Settings

Item	Options	Description
PCI ROM Priority	Legacy ROM EFI Compatible ROM	If the product is equipped with an optional ROM as the PCI device, you can set the priority of the ROM. Do not change this setting.

ACPI Settings

Use this menu to specify ACPI power management settings.

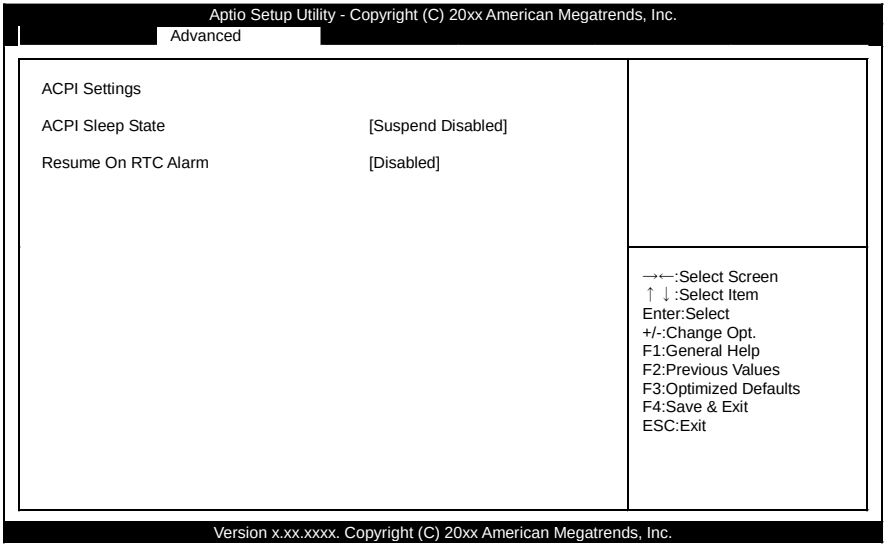


Figure 5.4. ACPI Settings

Table 5.5. ACPI Settings

Item	Options	Description
ACPI Sleep State	Suspend Disabled S1 (CPU Stop Clock) [S3 (Suspend to RAM)]	Selects the ACPI sleep State used when the system switches to the suspended state. Do not change this setting.
Resume On RTC Alarm	[Disabled] Enabled	Enables or disables the function for automatically turning the system on at the specified date and time. When this is enabled, use the following items to set the date and time at which the system will automatically turn on.

Table 5.6. Resume On RTC Alarm (Only Available When "Enabled" Is Selected)

Item	Options	Description
RTC Wake up Day	1-31	Sets the day at which the system will automatically turn on. If this is set to 0, the system will turn on each day.
RTC Wake up Hour	0-23	Sets the hour at which the system will automatically turn on.
RTC Wake up Minute	0-59	Sets the minute at which the system will automatically turn on.
RTC Wake up Second	0-59	Sets the second at which the system will automatically turn on.

Trusted Computing

Use this menu to specify Trusted Computing Configuration.

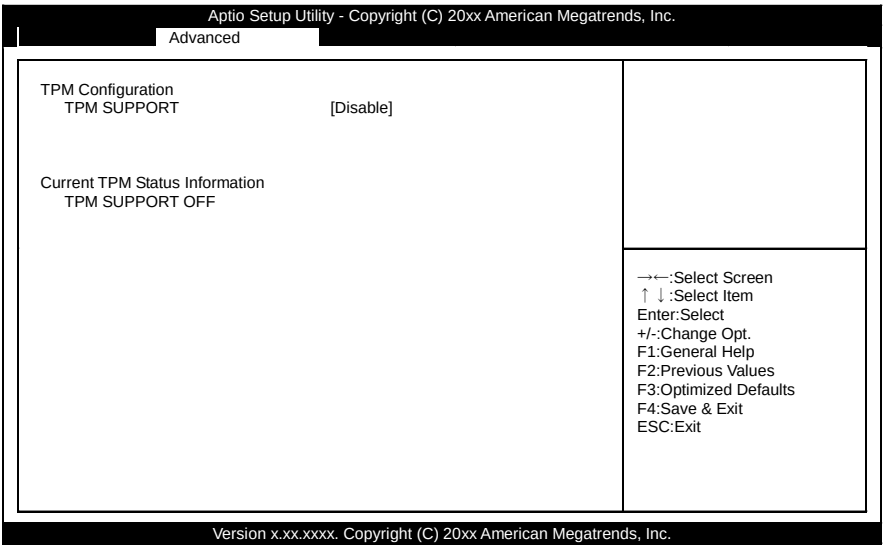


Figure 5.5. Trusted Computing

Table 5.7. Trusted Computing

Item	Options	Description
TPM SUPPORT	Disable Enable	Security chips are not supported. Set this to "Disable."

CPU Configuration

Use this menu to specify CPU Configuration.

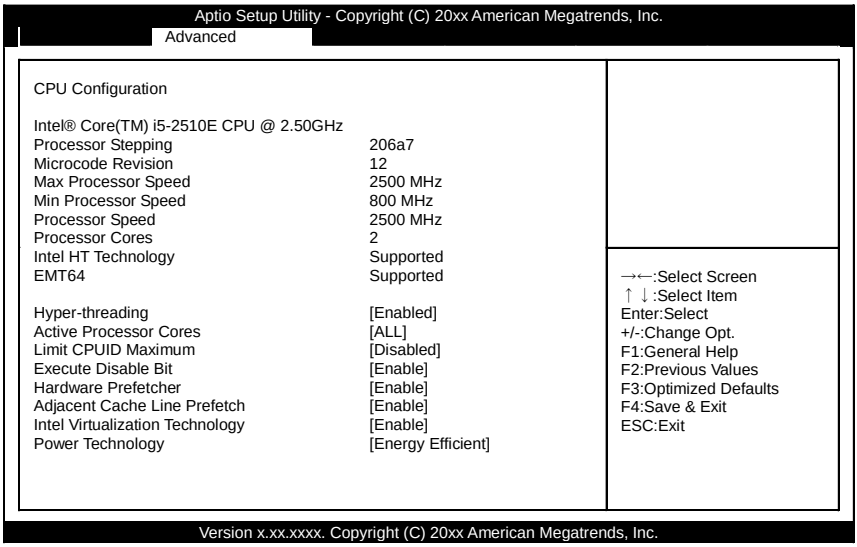


Figure 5.6. CPU Configuration

Items to be displayed depend on the CPU is mounted.

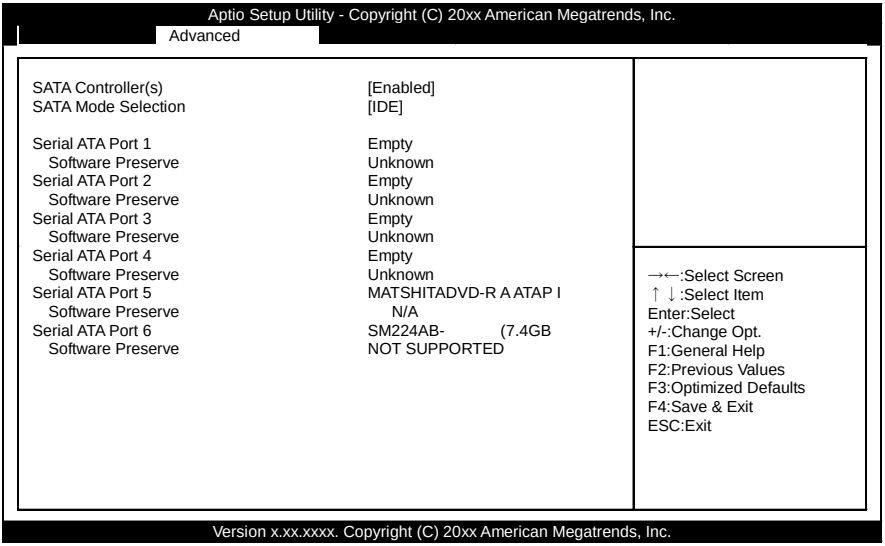
Table 5.8. CPU Configuration

Item	Options	Description
Hyper-threading	Disabled [Enabled]	Enables or disables the Hyper-Threading function.
Active Processor Cores	[All] 1	You can set the number of CPU cores. (The number of cores that you can set varies depending on the CPU that the product is equipped with.)
Limit CPUID Maximum	[Disabled] Enabled	Enables or disables the CPUID limit. Normally do not change this setting.
Execute Disable Bit	Disabled [Enabled]	You can set this function that prevents the illegal execution of programs through the use of the product with an operating system that supports DEP.
Hardware Prefetcher	Disabled [Enabled]	You can specify the setting of the hardware prefetch function. Normally do not change this setting.
Adjacent Cache Line Prefetch	Disabled [Enabled]	You can specify the setting of the cache line prefetch function. Normally do not change this setting.
Intel Virtualization Technology	Disabled [Enabled]	You can enable or disable the virtualization support function.
Power Technology	Disabled	You can specify the power management

Item	Options	Description
	Energy Efficient	setting. Do not change this setting.

SATA Configuration

Use this menu to specify SATA controller Configuration.



Figuer 5.7. SATA Configuration

Table 5.9. SATA Configuration

Item	Options	Description
SATA Controller(S)	Enabled Disabled	You can specify the SATA controller operation setting.
SATA Mode Selection	IDE AHCI RAID	You can select the SATA device mode.

Intel TXT(LT) Configuration

Use this menu to specify Intel TXT Configuration.

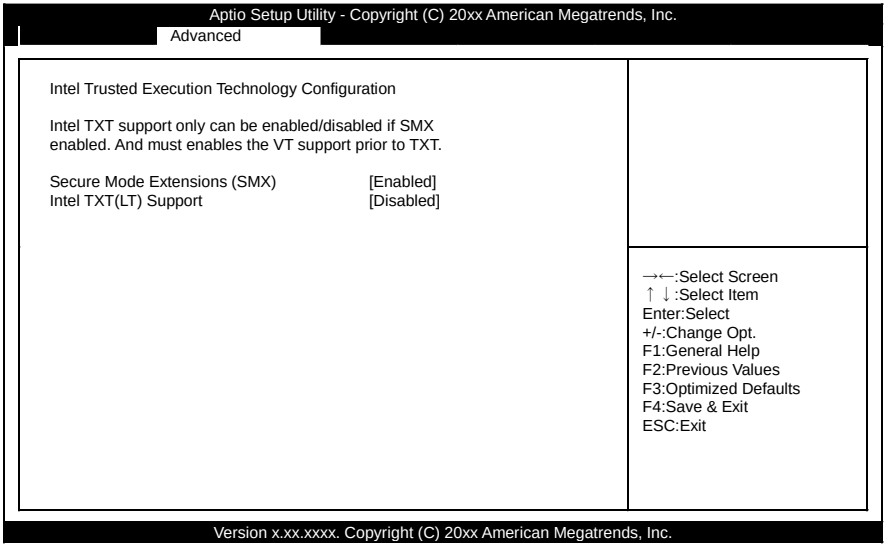

Aptio Setup Utility - Copyright (C) 20xx American Megatrends, Inc.
Advanced
Intel Trusted Execution Technology Configuration
Intel TXT support only can be enabled/disabled if SMX enabled. And must enables the VT support prior to TXT.
Secure Mode Extensions (SMX) [Enabled]
Intel TXT(LT) Support [Disabled]
→←:Select Screen
↑ ↓:Select Item
Enter:Select
+/-:Change Opt.
F1:General Help
F2:Previous Values
F3:Optimized Defaults
F4:Save & Exit
ESC:Exit
Version x.xx.xxxx. Copyright (C) 20xx American Megatrends, Inc.

Figure 5.8. Intel TXT(LT) Configuration

Table 5.10. Intel TXT(LT) Configuration

Item	Options	Description
Intel TXT(LT) Support	[Disabled] Enabled	You can enable or disable TXT support. You can only set this value when the virtualization support function (Table 5.9.) is enabled. Products equipped with Intel® Celeron™ processors are not supported.

PCH-FW Configuration

I can check the firmware version of the Intel ME.

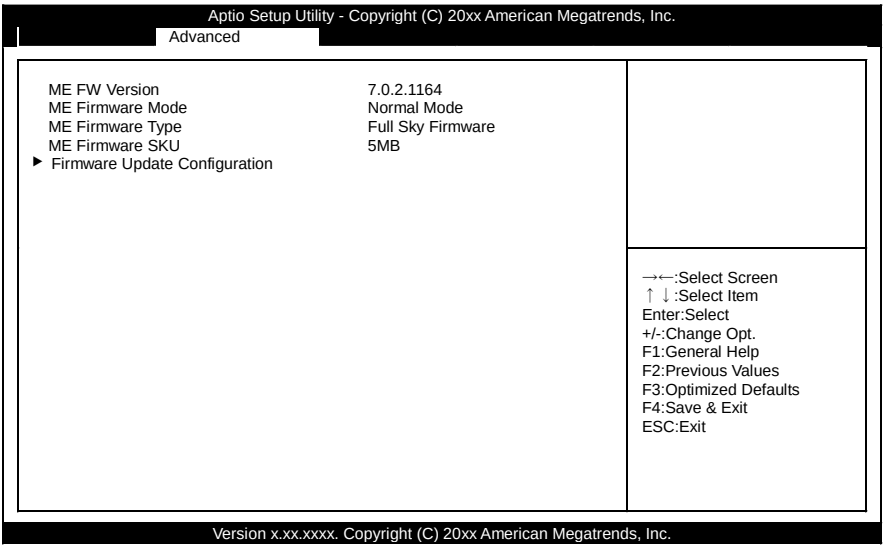


Figure 5.9. PCH-FW Configuration

Table 5.11. PCH-FW Configuration

Item	Options	Description
ME FW Image Re-Flash	[Disabled] Enabled	You can specify the Intel ME firmware overwrite operation.

Table 5.12. Firmware Update Configuration

Item	Options	Description
ME FW Image Re-Flash	[Disabled] Enabled	You can specify the Intel ME firmware overwrite operation.

AMT Configuration

Use this menu to specify Intel AMT Configuration.

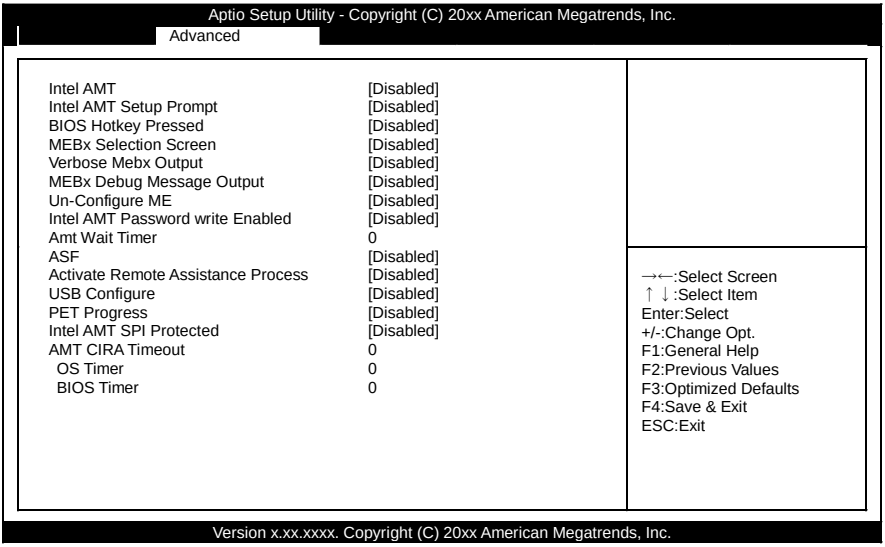


Figure 5.10. AMT Configuration

Table 5.13. AMT Configuration

Item	Options	Description
Intel AMT	Disabled Enabled	Intel AMT is not supported. Do not change this setting.
Intel AMT Setup Prompt	Disabled Enabled	Intel AMT is not supported. Do not change this setting.
BIOS Hotkey Pressed	Disabled Enabled	Intel AMT is not supported. Do not change this setting.
MEBx Selection Screen	Disabled Enabled	Intel AMT is not supported. Do not change this setting.
Verbose Mebx Output	Disabled Enabled	Intel AMT is not supported. Do not change this setting.
Hide Un-Configure ME Confirmation	Disabled Enabled	Intel AMT is not supported. Do not change this setting.
MEBx Debug Message Output	Disabled Enabled	Intel AMT is not supported. Do not change this setting.
Un-Configure ME	Disabled Enabled	Intel AMT is not supported. Do not change this setting.
Intel AMT Password Write Enabled	Disabled Enabled	Intel AMT is not supported. Do not change this setting.
AMT Wait Timer	0	Intel AMT is not supported. Do not change this setting.
ASF	Disabled Enabled	Intel AMT is not supported. Do not change this setting.

Item	Options	Description
Activate Remote Assistance Process	[Disabled] Enabled	Intel AMT is not supported. Do not change this setting.
USB Configure	[Disabled] Enabled	Intel AMT is not supported. Do not change this setting.
PET Progress	[Disabled] Enabled	Intel AMT is not supported. Do not change this setting.
Intel AMT SPI Protected	[Disabled] Enabled	Intel AMT is not supported. Do not change this setting.
AMT CIRA Timeout	[0]	Intel AMT is not supported. Do not change this setting.
OS Timer		Intel AMT is not supported. Do not change this setting.
BIOS Timer		Intel AMT is not supported. Do not change this setting.

USB Configuration

I can specify the settings of the USB controller.

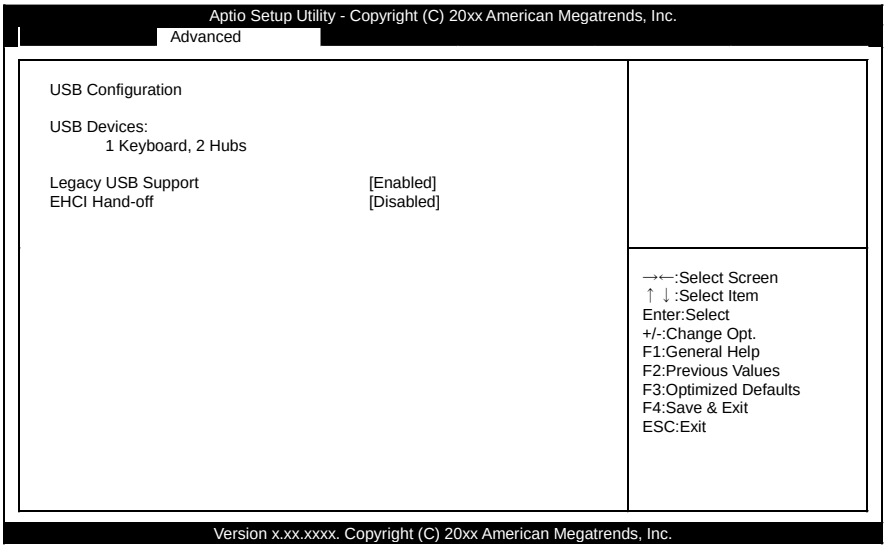


Figure 5.11. USB Configuration

Table 5.14. USB Configuration

Item	Options	Description
Legacy USB Support	[Enabled] Disabled Auto	I you to enable or disable support for USB keyboard with USB non-OS. Do not change this setting.
EHCI Hand-off	[Disabled] Enabled	You can specify the setting that enables this operation even on operating systems that do not have the EHCI hand off function.

Super IO Configuration

Use this menu to specify Super IO Configuration.

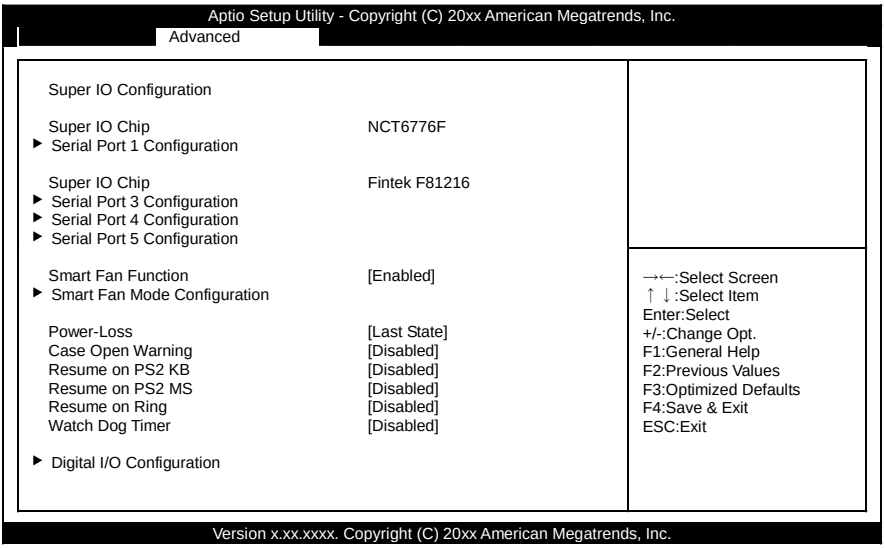


Figure 5.12. Super IO Configuration

Table 5.15. Super IO Configuration

Item	Options	Description
Serial Port 1 Configuration	Please refer to Table 5.16.	-
Serial Port 3 Configuration	Please refer to Table 5.17.	-
Serial Port 4 Configuration	Please refer to Table 5.18.	-
Serial Port 5 Configuration	Please refer to Table 5.19.	-
Smart Fan Function	Disabled [Enabled]	Specify the fan rotation control setting.
Smart Fan Mode Configuration	Please refer to Table 5.20.	-
Power-Loss	Always OFF Always ON [Last State]	Sets whether to start the system at the same point in time that the power supply starts. Always OFF : Press the power button to start the system. The system does not start at the same point in time that the power supply starts. Always ON : The system starts at the same point in time that the power supply starts. Last State :

Item	Options	Description
		If the power is turned off while the system is on, the next time the power supply starts, the system will start. If the power is turned off while the system is not on, the next time the power supply starts, the system will not start.
Case Open Warning	[Disabled] Enabled	You can specify the setting for the alarm that occurs when the case is open. (This cannot be used with this product.)
Resume on PS2 KB	Enabled [Disabled]	You can specify whether to resume operation from OS hibernation by way of a PS/2 keyboard.
Resume on PS2 MS	Enabled [Disabled]	You can specify whether to resume operation from OS hibernation by way of a PS/2 mouse.
Resume on Ring	Enabled [Disabled]	You can specify whether to resume operation from OS hibernation by way of a LAN.
Watch Dog Timer	Enabled [Disabled]	You can specify the watch dog timer function setting.
Digital I/O Configuration	表5.21参照	-

Table 5.16. Serial Port 1 Configuration

Item	Options	Description
Serial Port	Disabled [Enabled]	You can specify the serial port operation setting.
Change Settings	[Auto] IO=3F8h; IRQ=4 IO=3F8h; IRQ=3,4,5,6,7,9,10,11,12 IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12 IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12 IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12	You can specify the IO address and IRQ settings.

Table 5.17. Serial Port 3 Configuration

Item	Options	Description
Serial Port	Disabled [Enabled]	You can specify the serial port operation setting.
Change Settings	[Auto] IO=C80h; IRQ=5 IO=C80h; IRQ=5,7,10,11 IO=C88h; IRQ=5,7,10,11 IO=C90h; IRQ=5,7,10,11 IO=C98h; IRQ=5,7,10,11	You can specify the IO address and IRQ settings.

Table 5.18. Serial Port 4 Configuration

Item	Options	Description
Serial Port	Disabled [Enabled]	You can specify the serial port operation setting.
Change Settings	[Auto] IO=C88h; IRQ=5 IO=C80h; IRQ=5,7,10,11 IO=C88h; IRQ=5,7,10,11 IO=C90h; IRQ=5,7,10,11 IO=C98h; IRQ=5,7,10,11	You can specify the IO address and IRQ settings.

Table 5.19. Serial Port 5 Configuration

Item	Options	Description
Serial Port	Disabled [Enabled]	You can specify the serial port operation setting.
Change Settings	[Auto] IO=C90h; IRQ=5 IO=C80h; IRQ=5,7,10,11 IO=C88h; IRQ=5,7,10,11 IO=C90h; IRQ=5,7,10,11 IO=C98h; IRQ=5,7,10,11	You can specify the IO address and IRQ settings.

Table 5.20. Smart Fan Mode Configuration

Item	Options	Description
System Fan Mode	[Manual Mode] Thermal Cruise Mode SMART FAN Ⅳ Mode	You can specify the system fan operation setting.
SYSFAN PWM/DC Voltage Output Value (Manual Mode)	96	You can specify the voltage to output to the system fans.
SYSFAN Target Temperature (Thermal Cruise Mode)	50	You can specify the case internal temperature setting.
SYSFAN Tolerance of Target Temp (Thermal Cruise Mode)	5	You can specify the allowable case internal temperature.
SYSFAN Step Up Time (Thermal Cruise Mode)	10	You can specify the setting for the time to increase the number of system fan rotations.
SYSFAN Step Down Time (Thermal Cruise Mode)	10	You can specify the setting for the time to decrease the number of system fan rotations.
SYSFAN Start-Up Value (Thermal Cruise Mode)	1	This is the value at which the system fans start.
SYSFAN Stop Value (Thermal Cruise Mode)	1	This is the value at which the system fans stop.
SYSFAN Temperature 1 (SMART FAN Ⅳ Mode)	30	This is the temperature of system fan 1.
SYSFAN DC/PWM 1 (SMART FAN Ⅳ Mode)	40	This is the DC/PWM value of system fan 1.
SYSFAN Temperature 2 (SMART FAN Ⅳ Mode)	40	This is the temperature of system fan 2.
SYSFAN DC/PWM 2 (SMART FAN Ⅳ Mode)	50	This is the DC/PWM value of system fan 2.
SYSFAN Temperature 3 (SMART FAN Ⅳ Mode)	50	This is the temperature of system fan 3.
SYSFAN DC/PWM 3 (SMART FAN Ⅳ Mode)	60	This is the DC/PWM value of system fan 3.
SYSFAN Temperature 4 (SMART FAN Ⅳ Mode)	60	This is the temperature of system fan 4.
SYSFAN DC/PWM 4 (SMART FAN Ⅳ Mode)	70	This is the DC/PWM value of system fan 4.
SYSFAN Critical Temperature (SMART FAN Ⅳ Mode)	70	This is the system fan critical temperature setting.
SYSFAN Critical Temp Tolerance (SMART FAN Ⅳ Mode)	3	This is the allowable system fan critical temperature.

Table 5.21. Digital I/O Configuration

Item	Options	Description
Digital I/O Pin 0	Input [Output High] Output Low	You can specify the IO port function setting.
Digital I/O Pin 1	Input [Output High] Output Low	You can specify the IO port function setting.
Digital I/O Pin 2	[Input] Output High Output Low	You can specify the IO port function setting.
Digital I/O Pin 3	[Input] Output High Output Low	You can specify the IO port function setting.
Digital I/O Pin 4	[Input] Output High Output Low	You can specify the IO port function setting.
Digital I/O Pin 5	Input [Output High] Output Low	You can specify the IO port function setting.
Digital I/O Pin 6	[Input] Output High Output Low	You can specify the IO port function setting.
Digital I/O Pin 7	[Input] Output High Output Low	You can specify the IO port function setting.

H/W Monitor

You can view hardware monitors such as that for the CPU temperature.

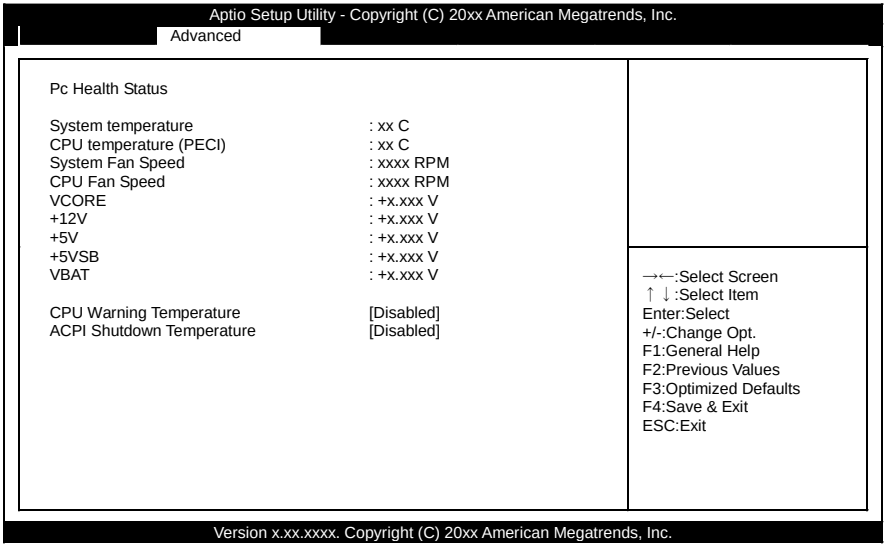


Figure 5.13. H/W Monitor

Table 5.22. H/W Monitor

Item	Options	Description
CPU Warning Temperature	Disabled 50 C/122 F 55 C/131 F 60 C/140 F 65 C/149 F 70 C/158 F 75 C/167 F	An alarm sounds when the set temperature is reached.
ACPI Shutdown Temperature	Disabled 70 C/158 F 75 C/167 F 80 C/176 F 85 C/185 F 90 C/194 F 95 C/205 F	The power is turned off when the set temperature is reached.

Serial Port Console Redirection

Use this menu to specify Serial Port Console Configuration.

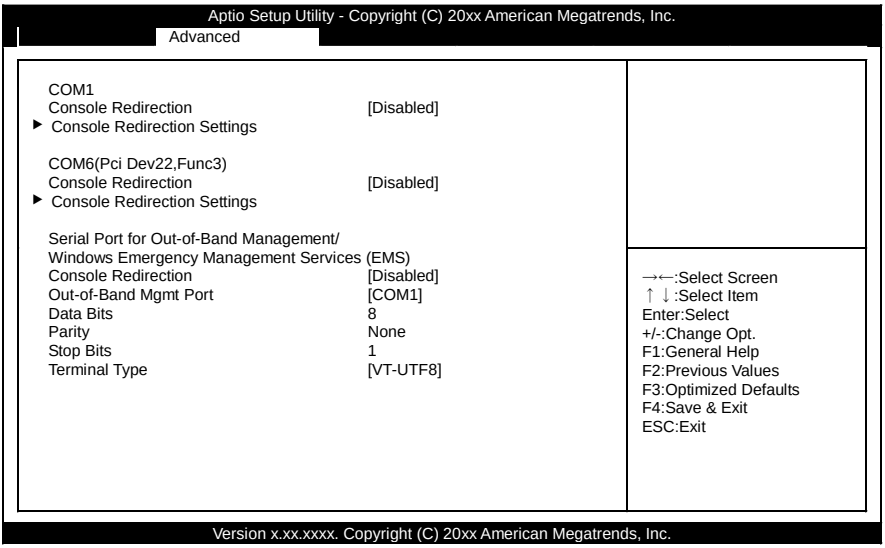


Figure 5.14. Serial Port Console Redirection

Table 5.23. Serial Port Console Redirection

Item	Options	Description
Console Redirection (COM1)	[Disabled] Enabled	This is not supported. Do not change this setting.
Console Redirection (COM6)	[Disabled] Enabled	This is not supported. Do not change this setting.
Console Redirection (Windows MES)	[Disabled] Enabled	This is not supported. Do not change this setting.
Out-of-Band Mgmt Port	[COM1] COM6(Pci Dev22,Func3)	This is not supported. Do not change this setting.
Terminal Type	VT100 VT100+ [VT-UTF8] ANSI	This is not supported. Do not change this setting.

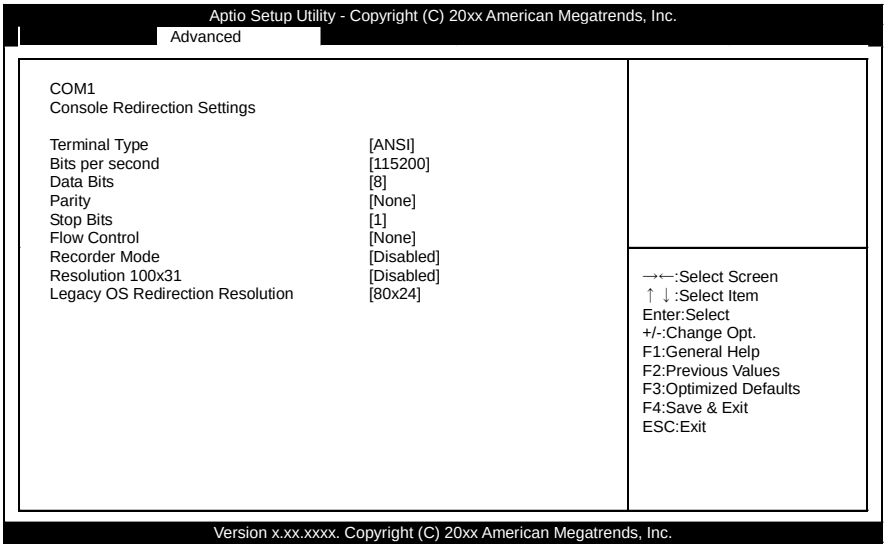


Figure 5.15. Console Redirection Settings (Console Redirection COM1 Enabled)

Table 5.24. Console Redirection Settings (Console Redirection COM1 Enabled)

Item	Options	Description
Terminal Type	VT100 VT100+ VT-UTF8 [ANSI]	You can specify the communication standard setting.
Bit per second	9600 19200 57600 [115200]	You can specify the baud rate setting.
Data Bits	7 [8]	You can specify the data length setting.
Parity	[None] Even Odd Mark Space	You can specify the parity setting.
Stop Bits	[1] 2	You can specify the stop bit setting.
Flow Control	[None] Hardware RTS/CTS	You can specify the flow control setting.
Recorder Mode	[Disabled] Enabled	You can specify the recorder mode setting.
Resolution 100x31	[Disabled] Enabled	This is the resolution setting.
Legacy OS Redirection Resolution	[80x24] 80x25	You can specify this setting for legacy operating systems.

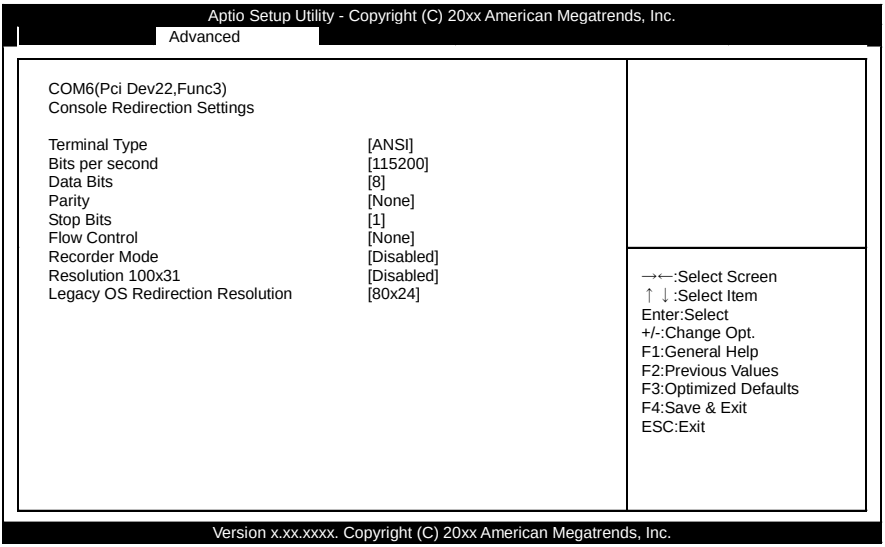


Figure 5.16. Console Redirection Settings(Console Redirection COM6 Enabled)

Table 5.25. Console Redirection Settings(Console Redirection COM6 Enabled)

Item	Options	Description
Terminal Type	VT100 VT100+ VT-UTF8 [ANSI]	You can specify the communication standard setting.
Bit per second	9600 19200 57600 [115200]	You can specify the baud rate setting.
Data Bits	7 [8]	You can specify the data length setting.
Parity	[None] Even Odd Mark Space	You can specify the parity setting.
Stop Bits	[1] 2	You can specify the stop bit setting.
Flow Control	[None] Hardware RTS/CTS	You can specify the flow control setting.
Recorder Mode	[Disabled] Enabled	You can specify the recorder mode setting.
Resolution 100x31	[Disabled] Enabled	This is the resolution setting.
Legacy OS Redirection Resolution	[80x24] 80x25	You can specify this setting for legacy operating systems.

Sandybridge DTS Configuration

You can specify the CPU temperature monitoring correction setting.

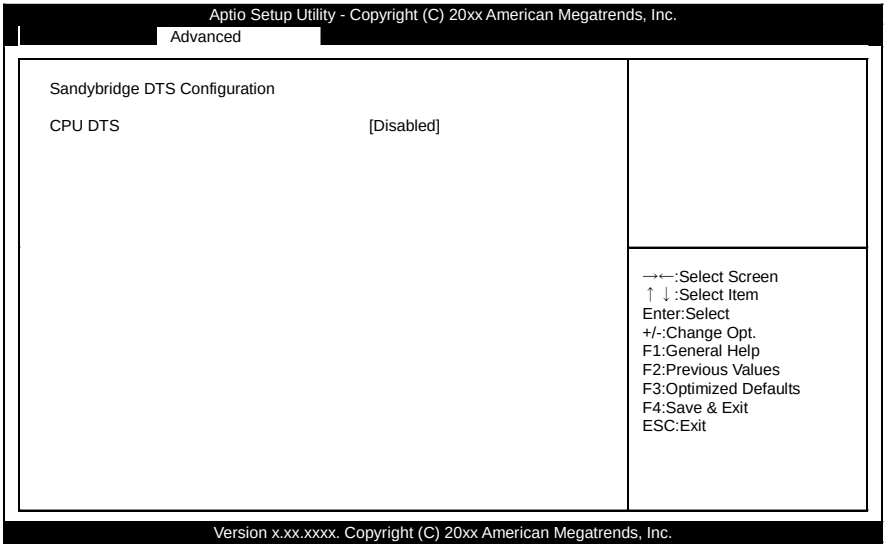


Figure 5.17. Sandybridge DTS Configuration

Table 5.26. Sandybridge DTS Configuration

Item	Options	Description
CPU DTS	Disabled Enabled	You can specify the CPU temperature monitoring correction setting.

Sandybridge PPM Configuration

I allows you to control the settings for CPU power saving mode.

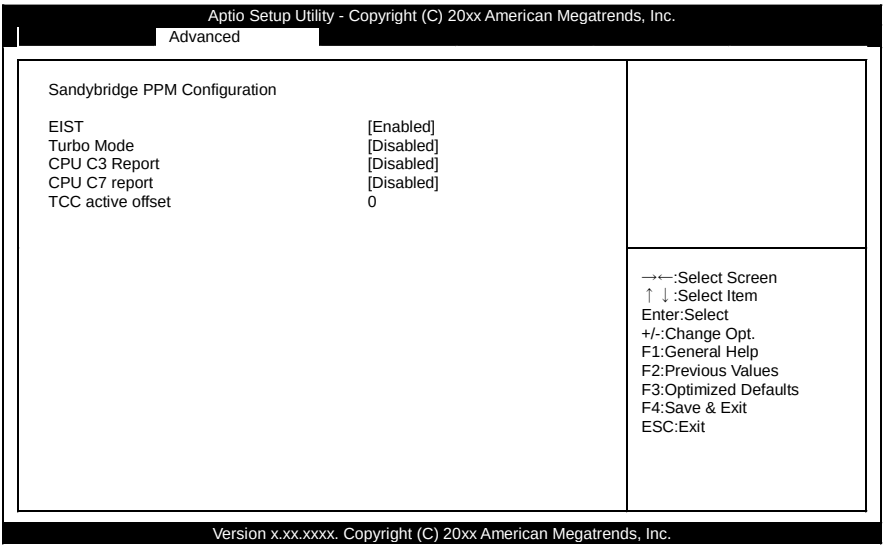


Figure 5.18. Sandybridge PPM Configuration

Table 5.27. Sandybridge PPM Configuration

Item	Options	Description
EIST	Disabled [Enabled]	You can specify this setting that supports power saving.
Turbo Mode	[Disabled] Enabled	You can specify this setting for using CPU operations at high speed.
CPU C3 Report	[Disabled] Enabled	You can specify the CPU power-saving setting. This is only valid when the CPU supports C3 State.
CPU C7 Report	[Disabled] Enabled	You can specify the CPU power-saving setting. This is only valid when the CPU supports C7 State.
Long duration power limit	[0]	This is the long duration power limit value. When the load is high for a long period of time, the operating clock is lowered so that power is reduced to the specified value.
Long duration maintained	[28]	Time setting for a long time
Short duration power limit	[0]	This is the short duration power limit value. When the load is high for a short period of time, the operating clock is lowered so that power is reduced to the specified value.
TCC active offset	[0]	This is the offset value for temperature monitoring.

Chipset

Use this menu to specify advanced chipset settings. The following items are available:

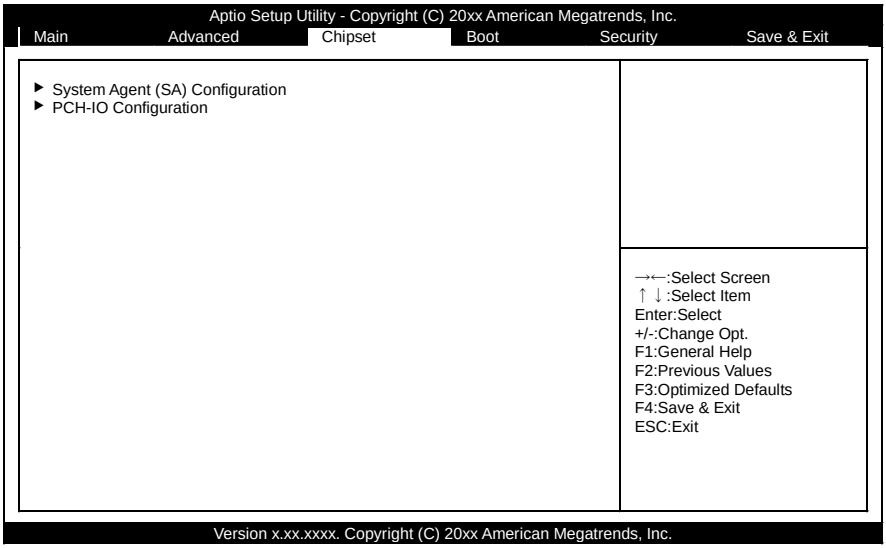


Figure 5.19. Chipset

The following items are available:

System Agent Configuration
Use this menu to specify System Agent settings.

PCH-IO Configuration
Use this menu to specify PCH-IO settings.

System Agent (SA) Configuration

You can specify the System Agent settings.

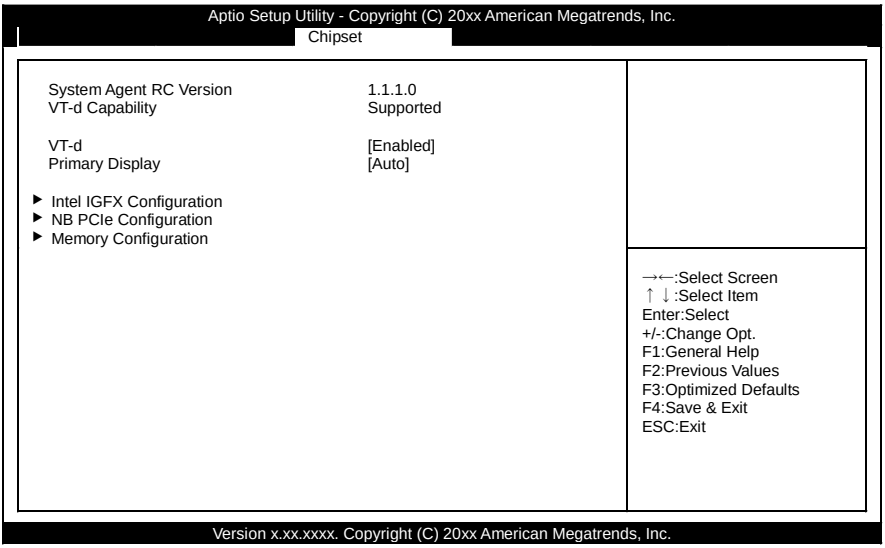


Figure 5.20. System Agent(SA) Configuration

Table 5.28. System Agent(SA) Configuration

Item	Options	Description
VT-d	Disabled [Enabled]	You can specify the Intel VT-d setting. (Celeron models are excluded.)
Primary Display	[Auto] IGFX PEG	You can specify the primary display setting.

Intel IGFX Configuration

You can specify the graphics function settings.

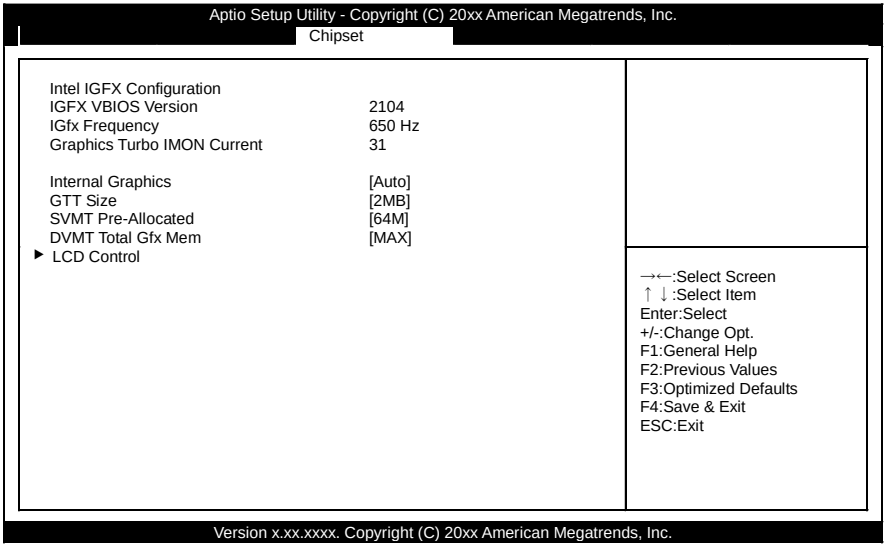


Figure 5.21. Intel IGFX Configuration

Table 5.29. Intel IGFX Configuration

Item	Options	Description
Graphics Turbo IMON Current	31	You can specify this setting related to Graphics Turbo IMON.
Internal Graphics	Auto Disabled Enabled	You can specify the integrated graphics (IGD) setting.
GTT Size	1MB 2MB	You can specify the GTT size setting.
DVMT Pre-Allocated	64MB	You can specify the amount of main memory to allocate for graphics use.
DVMT Total Gfx Mem	MAX	You can specify the amount of graphics memory.

LCD Control

You can specify the LCD settings.

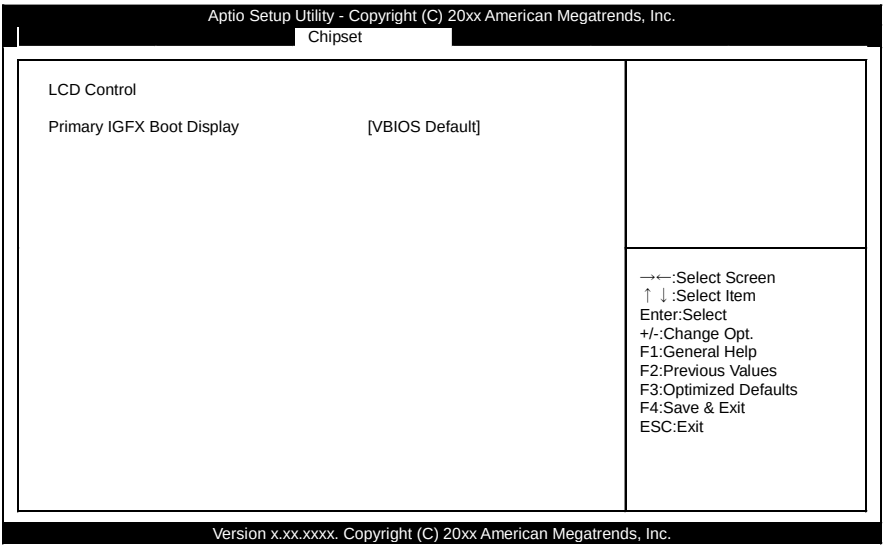


Figure 5.22. LCD Control

Table 5.30. LCD Control

Item	Options	Description
Primary IGFX Boot Display	[VBIOS Default] CRT HDMI Display Port	You can specify the primary display setting to use when starting the IGD.
Secondary IGFX Boot Display	[VBIOS Default] CRT HDMI Display Port	You can specify the secondary display setting to use when starting the IGD.

NB PCIe Configuration

You can specify the settings for functions related to the PCI Express slot.

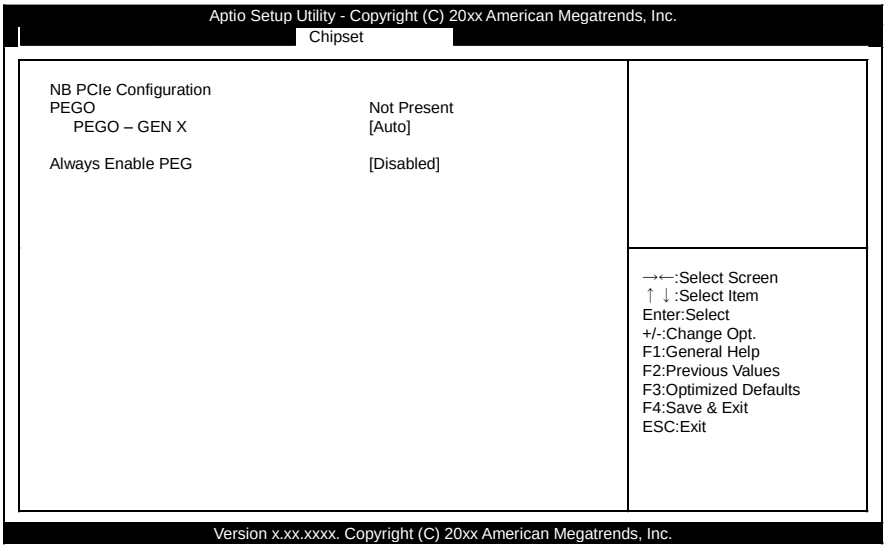


Figure 5.23. NB PCIe Configuration

Table 5.31. NB PCIe Configuration

Item	Options	Description
PEG – Gen X	[Auto]	You can specify the PCI Express slot generation setting.
Always Enable PEG	[Disabled] Enabled	You can specify whether to use IGD when using enhanced graphics.

Memory Configuration

You can specify the memory settings.
If you change the memory settings, the product may become unable to start. Normally do not change the settings.

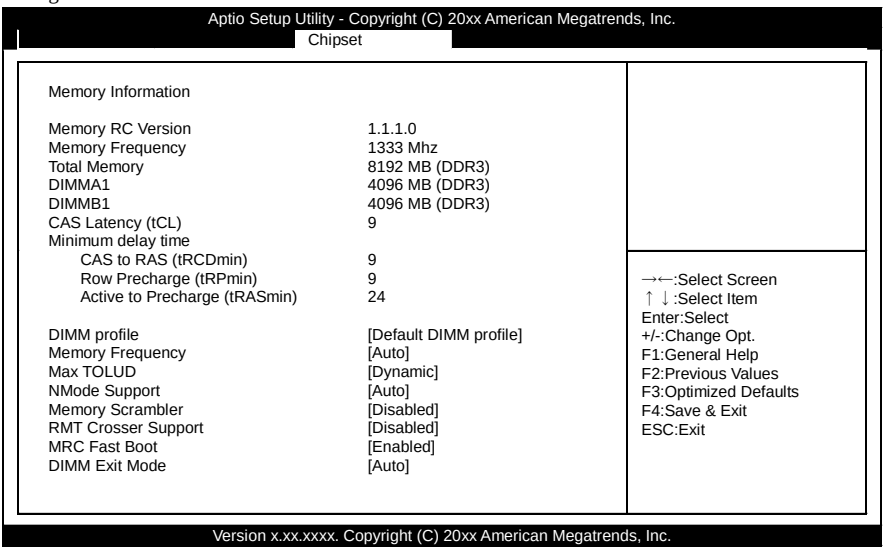


Figure 5.24. Memory Configuration

Table 5.32. Memory Configuration

Item	Options	Description
DIMM profile	[Default DIMM profile] XMP profile 1 XMP profile 2	You can specify the DIMM profile setting.
Memory Frequency	[Auto] 1067 1333 1600	You can specify the DIMM maximum frequency setting. Normally do not change this setting.
Max TOLUD	[Dynamic]	You can specify the amount of data that can be used for memory addresses. Normally do not change this setting.
NMode Support	[Auto] 1Nmode 2Nmode	You can specify the NMode Support setting. Normally do not change this setting.
Memory Scrambler	Enabled [Disabled]	You can specify the Memory Scrambler setting. Normally do not change this setting.
RMT Crosser Support	Enabled [Disabled]	You can specify the Memory Scrambler setting. Normally do not change this setting.
MRC Fast Boot	[Enabled] Disabled	You can specify the Memory Scrambler setting. Normally do not change this setting.

Item	Options	Description
DIMM Exit Mode	[Auto] Slow Exit Fast Exit	You can specify the DIMM Exit Mode setting. Normally do not change this setting.

PCH-IO Configuration

You can specify the PCH-IO settings.

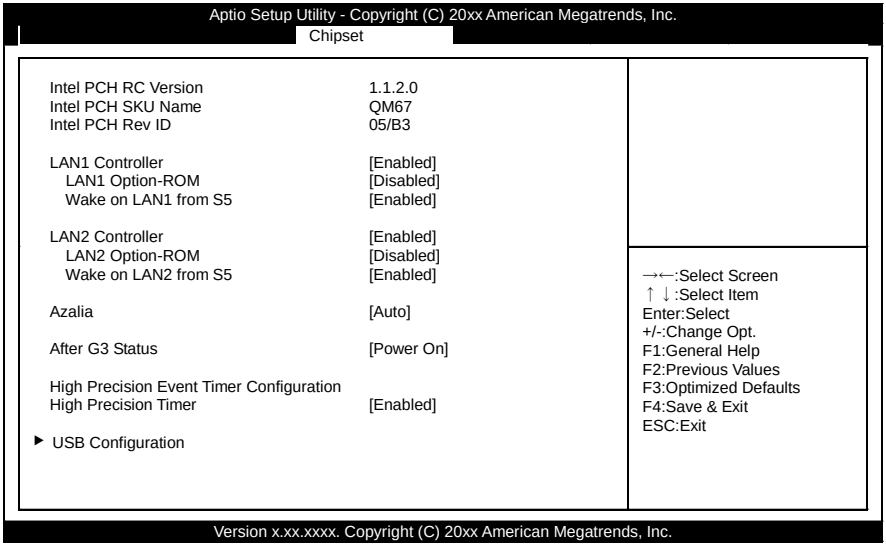


Figure 5.25. PCH-IO Configuration

Table 5.33. PCH-IO Configuration

Item	Options	Description
LAN1 Controller	[Enabled] Disabled	You can specify the LAN1 Controller setting.
LAN1 Option-ROM	Enabled [Disabled]	You can specify the LAN1 Option-ROM setting.
Wake on LAN1 from S5	[Enabled] Disabled	You can specify the Wake on LAN setting.
LAN2 Controller	[Enabled] Disabled	You can specify the LAN2 Controller setting.
LAN2 Option-ROM	Enabled [Disabled]	You can specify the LAN2 Option-ROM setting.
Wake on LAN2 from S5	[Enabled] Disabled	You can specify the Wake on LAN setting.
Azalia	Disabled Enabled [Auto]	You can specify the Azalia Audio (HD Audio) setting.
After G3 Status	Power Off [Power On]	You can specify the start setting to use when the AC power supply turns on.

Item	Options	Description
High Precision Timer	Disabled [Enabled]	You can specify the high-precision event timer setting.
USB Configuration	表5.34参照	

USB Configuration

You can specify the USB settings.

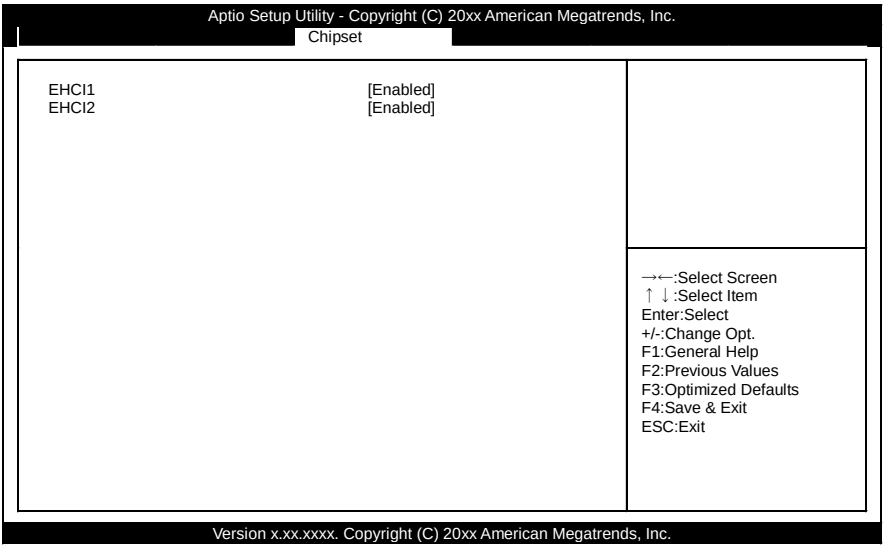


Figure 5.26. USB Configuration

Table 5.34. USB Configuration

Item	Options	Description
EHCI1	Disabled [Enabled]	You can specify the USB 2.0 EHCI setting.
EHCI2	Disabled [Enabled]	You can specify the USB 2.0 EHCI setting.

Boot Configuration

You can configure settings such as the device to start.

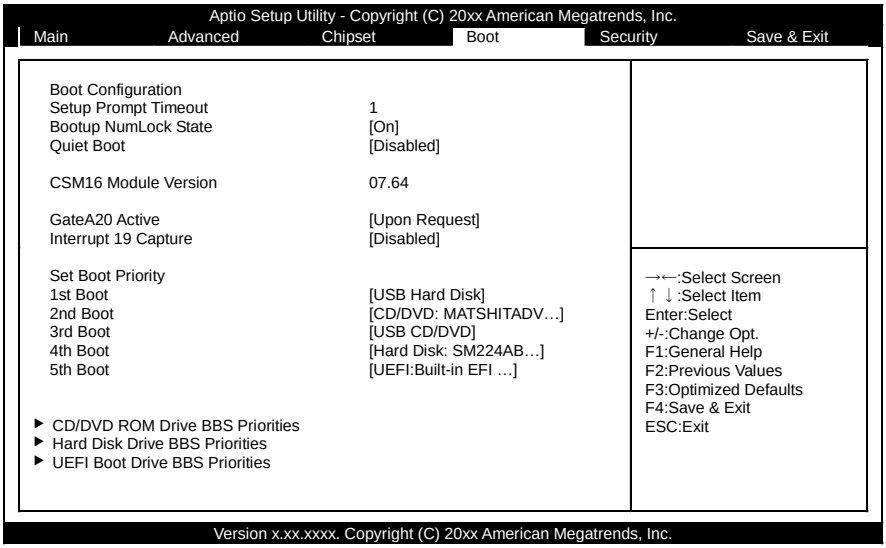


Figure 5.27. Boot Configuration

Table 5.35. Boot Configuration

Item	Options	Description
Setup Prompt Timeout	1	You can set the time to wait for the BIOS Setup <DEL> or <F2> input. Unit: [Seconds]
Bootup NumLock State	On Off	You can specify state of the NumLock key when the system starts.
Quiet Boot	Disabled Enabled	You can specify the setting for whether to start the system with information hidden.
GateA20 Active	Upon Request Always	You can specify the GateA20 function.
Interrupt 19 Capture	Disabled Enabled	You can specify whether to enable or disable the Interrupt19 Hook when the system starts.
1st Boot	XXXXXXXXX (Specify an arbitrary device.)	You can specify the first device to start.
2nd Boot	XXXXXXXXX (Specify an arbitrary device.)	You can specify the second device to start.
3rd Boot	XXXXXXXXX (Specify an arbitrary device.)	You can specify the third device to start.
4th Boot	XXXXXXXXX (Specify an arbitrary device.)	You can specify the fourth device to start.
5th Boot	XXXXXXXXX (Specify an arbitrary device.)	You can specify the fifth device to start.

⚠ CAUTION

- In the Boot Option #x list, the same device may be displayed as shown below.
  (1) USB Disk
  (2) UEFI：USB Disk
  In this situation, select (1) to perform legacy booting in which the disk is assumed to be MBR formatted and (2) to perform UEFI booting in which the disk is assumed to be GPT formatted.
  Be sure to specify (1) for the boot setting. Booting with option (2) is not supported.
- Only the devices set with high priorities with the other settings such as CD/DVD ROM Drive BBS Priorities can be selected in the Boot Option #x lists.

CD/DVD ROM Drive BBS Priorities

You can specify the start order of CD/DVD ROM drives.

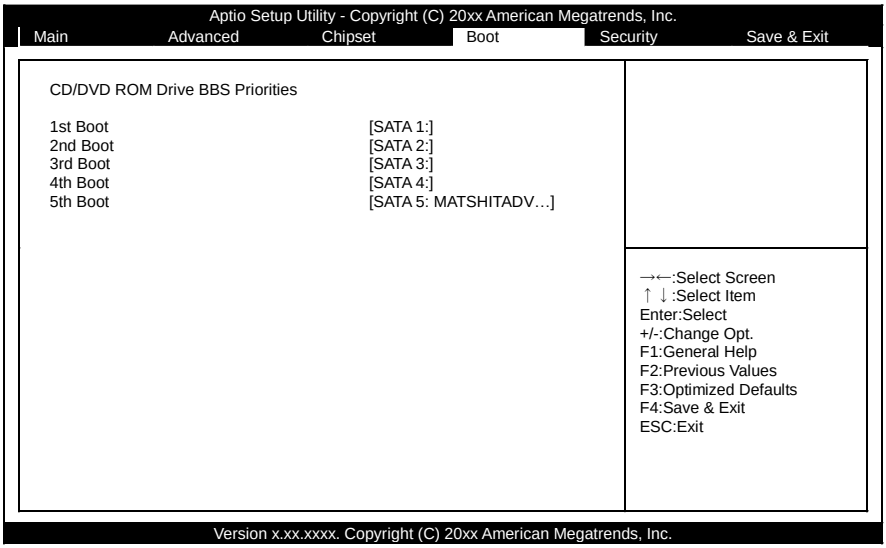


Figure 5.28. CD/DVD ROM Drive BBS Priorities

Table 5.36. CD/DVD ROM Drive BBS Priorities

Item	Options	Description
1st Boot	XXXXXXXXX (Specify an arbitrary device.)	You can specify the first CD/DVD device to start.
2nd Boot	XXXXXXXXX (Specify an arbitrary device.)	You can specify the second CD/DVD device to start.
3rd Boot	XXXXXXXXX (Specify an arbitrary device.)	You can specify the third CD/DVD device to start.
4th Boot	XXXXXXXXX (Specify an arbitrary device.)	You can specify the fourth CD/DVD device to start.
5th Boot	XXXXXXXXX (Specify an arbitrary device.)	You can specify the fifth CD/DVD device to start.

Hard Disk Drive BBS Priorities

You can specify the start order of Hard Disk Drive.

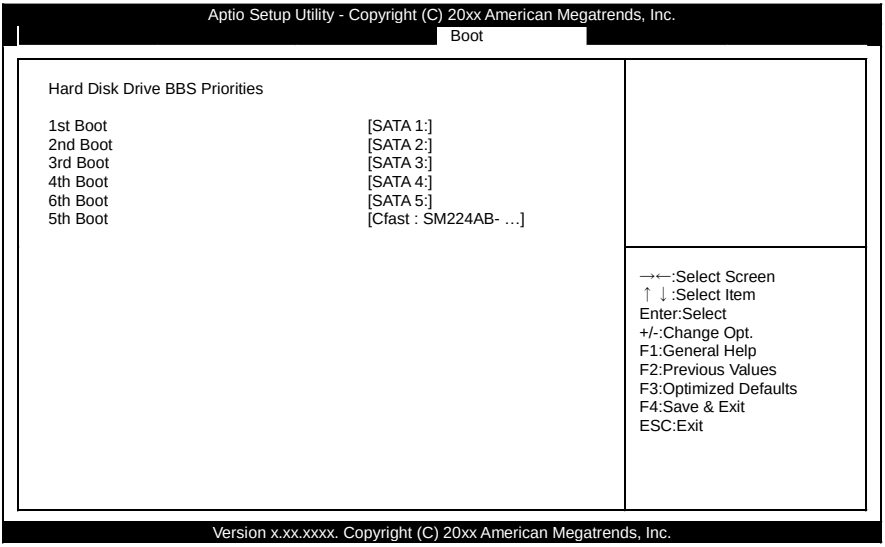


Figure 5.29. Hard Disk Drive BBS Priorities

Table 5.37. Hard Disk Drive BBS Priorities

Item	Options	Description
1st Boot	XXXXXXXXX (Specify an arbitrary device.)	You can specify the first HDD device to start.
2nd Boot	XXXXXXXXX (Specify an arbitrary device.)	You can specify the second HDD device to start.
3rd Boot	XXXXXXXXX (Specify an arbitrary device.)	You can specify the third HDD device to start.
4th Boot	XXXXXXXXX (Specify an arbitrary device.)	You can specify the fourth HDD device to start.
5th Boot	XXXXXXXXX (Specify an arbitrary device.)	You can specify the fifth HDD device to start.

UEFI Boot Drive BBS Priorities

You can specify the UEFI Boot Drive settings.

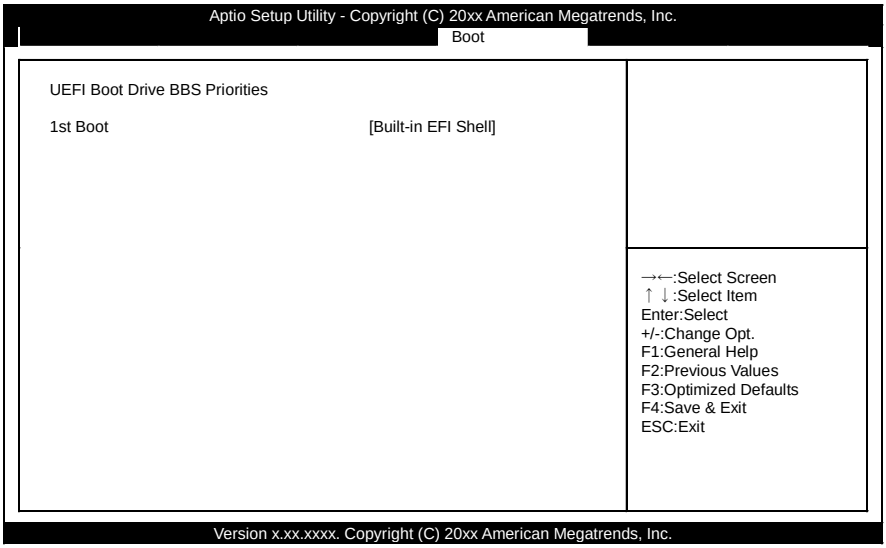


Figure 5.30. UEFI Boot Drive BBS Priorities

Table 5.38. UEFI Boot Drive BBS Priorities

Item	Options	Description
1st Boot	[Built-in EFI Shell] Disabled	You can specify to start XX first. If there are other devices that can be started, they will be listed as items.

Security

Use this menu to configure system security settings. The following items are available:

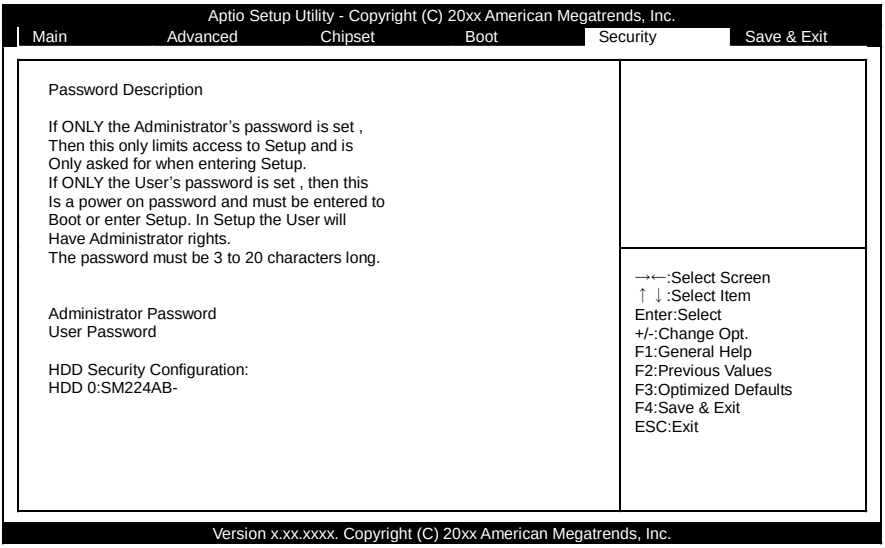

Aptio Setup Utility - Copyright (C) 20xx American Megatrends, Inc.
Main
Advanced
Chipset
Boot
Security
Save & Exit
Password Description
If ONLY the Administrator's password is set ,
Then this only limits access to Setup and is
Only asked for when entering Setup.
If ONLY the User's password is set , then this
Is a power on password and must be entered to
Boot or enter Setup. In Setup the User will
Have Administrator rights.
The password must be 3 to 20 characters long.
Administrator Password
User Password
HDD Security Configuration:
HDD 0:SM224AB-
→←:Select Screen
↑ ↓:Select Item
Enter:Select
+/-:Change Opt.
F1:General Help
F2:Previous Values
F3:Optimized Defaults
F4:Save & Exit
ESC:Exit
Version x.xx.xxxx. Copyright (C) 20xx American Megatrends, Inc.

Figure 5.31. Security

Administrator Password
You can configure the Administrator Password settings.
When you press <Enter> on this item, you are required to input the password as below.

Administrator Password	
Create New Password	[****]
Confirm New Password	[****]

Enter a password of between 3 or more characters twice.
To nullify the password, go to the Administrator Password Input Screen again.

User Password
You can configure the User Password settings.
When you press <Enter> on this item, you are required to input the password as below.

User Password	
Create New Password	[****]
Confirm New Password	[****]

Enter a password of between 1 or more characters twice.
Follow the same procedure as Administrator Password to nullify the password.

⚠ CAUTION

Be careful not to forget the password. If you forget the password, the product will have to be repaired at an extra cost.

HDD Security Configuration

You can specify the HDD Security settings.

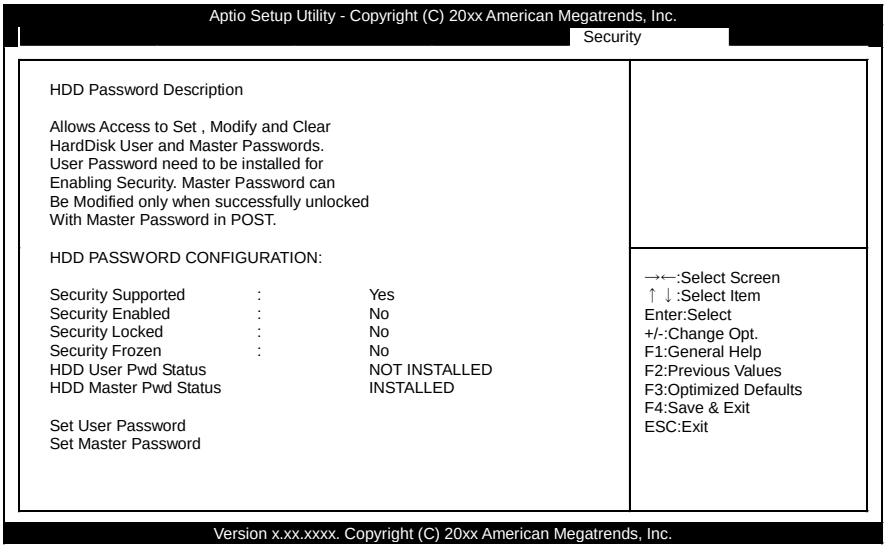

Aptio Setup Utility - Copyright (C) 20xx American Megatrends, Inc.
Security
HDD Password Description
Allows Access to Set , Modify and Clear
HardDisk User and Master Passwords.
User Password need to be installed for
Enabling Security. Master Password can
Be Modified only when successfully unlocked
With Master Password in POST.
HDD PASSWORD CONFIGURATION:
Security Supported : Yes
Security Enabled : No
Security Locked : No
Security Frozen : No
HDD User Pwd Status NOT INSTALLED
HDD Master Pwd Status INSTALLED
Set User Password
Set Master Password
→←:Select Screen
↑ ↓:Select Item
Enter:Select
+/-:Change Opt.
F1:General Help
F2:Previous Values
F3:Optimized Defaults
F4:Save & Exit
ESC:Exit
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Figure 5.32. HDD Security Configuration

The following items are available:

Set User Password
You can configure the Set User Password settings.

Press Enter to display the following screen for entering the password.

Set User Password	
Create New Password	[****]
Confirm New Password	[****]

Enter a password of between 1 or more characters twice.
To disable the password, enter the Administrator Password entry screen again, and then press Enter without entering a password.

Set Master Password
You can configure the Set Master Password settings.

Press Enter to display the following screen for entering the password.

Set Master Password	
Create New Password	[****]
Confirm New Password	[****]

Enter a password of between 1 or more characters twice.
In order to disable the password, please enter the input screen of the Administrator Password again.

Save & Exit

Use this menu to load/save settings changes, and exit the setup menu. The following items are available:

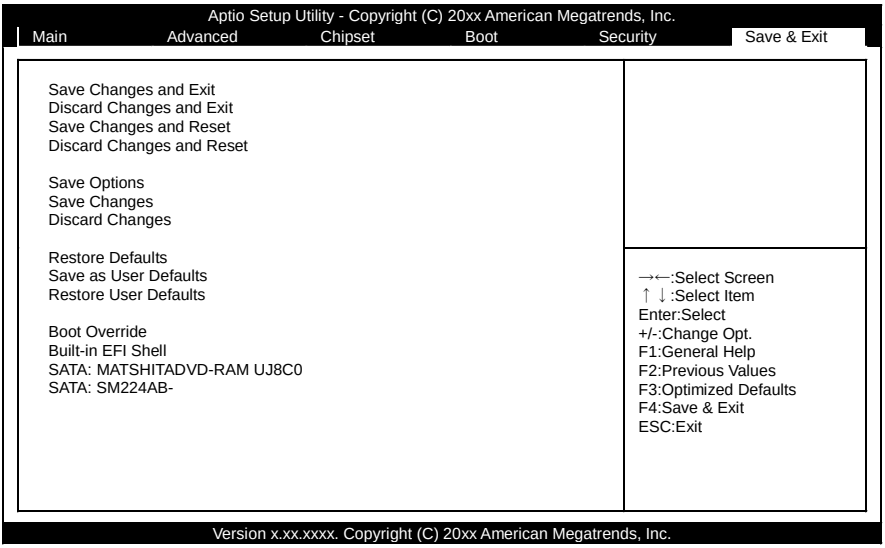

Figure 5.33. Save & Exit

The following items are available:

Saving Changes and Exit
Save the changed settings and exit.

Discard Change and Exit
Exit without saving the changed settings.

Saving Changes and Reset
Save the changed settings and restart.

Discard Change and Reset
Restart without saving the changed settings.

Save Changes
Save the changed settings.

Discard Changes
Discard the changed settings.

Restore Defaults
Return the settings to their default values.

Save as User Defaults
You can save the changed setting values as the User Defaults.

Restore User Defaults
Return the settings to the saved User Defaults.

6. Appendix

Battery Specification

This product uses the following battery.

- Type : Lithium primary battery
- Model : CR2032
- Maker : FDK
- Nominal voltage : 3V
- Nominal capacity : 220mAh
- Lithium content : 1g or less

Removing the Battery When Disposing of the Product

When you dispose of the product, follow the procedure below to remove the battery.

(1) Remove the screws from the sides of the cover, and then remove the main unit cover.

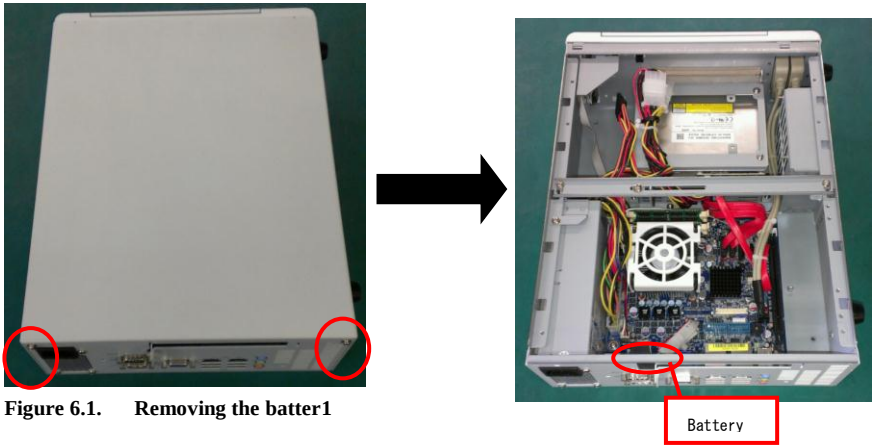

Figure 6.1. Removing the batter1

(2) Remove the battery.

Figure 6.2. Removing the batter2

Disposing the battery

Dispose the removed battery properly as instructed by local government.

7. List of Options

List of Options

RAID card

- RAID Card Set (RIAD-1, Mirroring support)

CFast Card

- CFastカード4GB
- CFastカード8GB

HDD

- 2.5inch SATA HDD 500GB

SSD

- 2.5inch SATA SSD 16GB
- 2.5inch SATA SSD 32GB

Riser board

- PCI-Ex16 x 1 Slot
- PCI x 1 Slot

OS

- Windows 7 Professional
- Windows XP Professional

* For more information on this options, see the Contec's website.。

EPC-2020 Series

User's Manual

EPC-2020-ACxxxxx

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